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# ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division

VOLUME 22

NUMBER 1

DEPOSITORY

FEB 01 1991

JANUARY 1991

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# COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory

Building 221

Argonne, Illinois 60439-4822

FAX: 708-972-5983

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

		Room	Phone	Electronic Mail Address
Division Director	David Weber	A251	2-7155	B22788 AT ANLVM
Computer Protection Program Manager	Jean Troyer	A237	2-7440	B18216 AT ANLVM
Computing and Telecommunications Operations	Larry Amiot	B243	2-5432	B10523 AT ANLVM
Computer Network	Bob McMahon (Acting)	B239	2-7270	B17385 AT ANLVM
Data Communications	Linda Winkler (Acting)	B251	2-7236	B32357 AT ANLVM
Service Engineering	Paul Phillips	D118	2-4343	B36679 AT ANLVM
	Vern Tantillo	C112	2-4181	B06434 AT ANLVM
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Management Information Systems	Diane O'Brien	B151	2-7167	B26424 AT ANLVM
Financial Systems	Nick Moore	D239	2-8075	B31048 AT ANLVM
Human Resource Systems	Bob Hischer	B147	2-7272	B22639 AT ANLVM
Information and Production Services	Miriam Bretscher	B139	2-7252	B26187 AT ANLVM
Materials and Plant Systems	Rich Slade	B159	2-7329	B32848 AT ANLVM
Planning, Finance, and Administration	Mike Boxberger	A245	2-5638	B34540 AT ANLVM
Scientific Applications and Research	Charles Mueller	A231	2-7153	B11284 AT ANLVM

The Division operates a Cray X-MP/14 with UNICOS 5.0, a Sun 3/280 gateway, a central VAX cluster (a DEC VAX-11/750, a DEC VAX 8700, and a DEC VAX 8250) with VMS 5.3, an IBM 3084QX9, and three Hewlett-Packard 3000 minicomputers. Software on the IBM computers includes VM/SP CMS Release 5, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E), and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 708-972-5415.

The *Argonne Computing Newsletter* is published monthly by the Computing and Telecommunications Division, Argonne National Laboratory, Argonne, Illinois 60439; edited, prepared, and formatted by April Heiberger with CMS, Waterloo Script, and the Linotype L300P typesetter. This *Newsletter* was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.



## COMPUTING COMMENTS

### CTD LAUNCHES THE XA PROJECT

CTD plans to convert the IBM mainframe operating systems to newer XA (Extended Architecture) versions. The XA versions of MVS and VM will allow larger user programs, provide new functions, and make better use of the newly acquired IBM 3084 hardware. In particular, users of MVS/XA will be able to run programs much larger than those runnable in MVS/370. The XA operating systems also allow efficient use of the capabilities and capacity of the IBM 3084 hardware.

Currently, VM/SP and MVS/370 are each allocated one-half of the IBM 3084 computer. To run MVS/XA and VM on the same machine, it is necessary to configure MVS and VM as XA versions with VM in control of the IBM 3084 and MVS/XA running under VM. The key to this conversion strategy is that VM/XA can provide production and test guest operating systems, including VM/SP, VM/XA, MVS/370, and MVS/XA.

The initial step is to replace VM/SP with VM/XA. VM/XA will control the entire IBM 3084, and a production MVS/370 operating system will be

occur in commands and messages issued from the new systems. CTD will install different versions of software products from IBM and other vendors (including systems maintained by Management Information Systems) that are compatible with the XA mode of operation. During the interim stages of the conversion, some temporary changes in the user interface may be evident. Changes to local modifications of system software, to execs, and to local programs that interact with the operating systems and the XA hardware may also be necessary. CTD will have to convert some system data, but changes to user VM minidisks should not be needed.

To help in the transition to the XA systems, CTD plans to use the flexibility of the VM/XA operating system to provide test and production systems simultaneously. Ample test time will be available before moving to production versions of the XA systems. Much of this test time should be available during normal business hours.

### NUMBER OF 1600 BPI/6250 BPI TAPE DRIVES TO BE REDUCED

As the conversion to the less expensive and more dependable IBM 3480-type cartridge tapes continues, the need for the old 10-inch round tape is decreasing. Therefore, in January will remove four of the eight IBM 3420 1 density (1600 bpi or 6250 bpi) 10-inch ves. In addition to the four remaining 8 drives and eight 3480 cartridge drives in service, one IBM 3420 Model 7 dual 10 bpi and 800 bpi drive plus one drive will remain in service for special u believe that this tape drive reduction ly affect your work, contact the User sultants at extension 2-5405.

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### ICS AND COMPUTER SCIENCE COMPUTING CLASSES

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anced Computing Research Facility  
(ACRF) will offer several three-day introductory classes (9:00 a.m. to 4:30 p.m.) on parallel computing to familiarize potential users with the ACRF multiprocessors and parallel programming in general. The classes are limited to 22 people.

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## COMPUTING COMMENTS

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The initial step is to replace VM/SP with VM/XA. VM/XA will control the entire IBM 3084, and a production MVS/370 operating system will be running under VM/XA. This stage should be reached by June 1991. A skeleton version of VM/XA running on one-half of the IBM 3084 that will provide experience with XA, allow changes, and provide a vehicle for testing should be operational in early 1991.

The move to MVS/XA will follow the successful completion of the VM conversion. A production MVS/XA system running under VM/XA should be operational by December 1991. A major consideration in timing the move from MVS/370 to MVS/XA is to avoid any conflicts with the fiscal year-end close period from August 1991 through November 1991.

Besides changes to the system software, the movement from the current 370 operating systems to XA versions will require changes to the hardware configuration to gain the benefits of the new operating system features. Changes are also expected in the way Systems Programming, Operations, and users interact with the system. Some changes will

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### MATHEMATICS AND COMPUTER SCIENCE PARALLEL COMPUTING CLASSES

The Mathematics and Computer Science Division's Advanced Computing Research Facility (ACRF) will offer several three-day introductory classes (9:00 a.m. to 4:30 p.m.) on parallel computing to familiarize potential users with the ACRF multiprocessors and parallel programming in general. The classes are limited to 22 people.



The classes will cover the following topics: (1) parallelizing compilers, (2) using the P4 package for portable parallel programming, (3) programming the BBN TC2000, (4) programming the Intel iPSC/860, (5) programming the Active Memory Technology Distributed Array Processor, (6) programming the Connection Machine-2, (7) introducing the LAPACK project, and (8) using the VecPar interactive parallelization tool.

The classes will include lectures and hands-on work on the parallel computers in the ACRF. Fortran will be the primary programming language. Knowledge of Fortran and Unix is necessary. A portion of the third day will be devoted to each attendee's particular project.

The schedule of classes for 1991 is:

March 6, 7, and 8  
June 19, 20, and 21  
August 21, 22, and 23  
October 16, 17, and 18  
December 4, 5, and 6

The parallel computers currently in the ACRF are the:

4-processor Ardent Titan  
8-processor Alliant FX/8  
8-processor Intel iPSC/860 hypercube  
20-processor Encore Multimax  
26-processor Sequent Symmetry  
45-processor BBN TC2000  
1,024-processor AMT DAP  
16,384-processor Thinking Machines CM-2

To register for a class, contact Teri Huml at (708) 972-7163 or at electronic mail address huml@mcs.anl.gov. There is a \$30.00 registration fee per person for attendees from universities, federal laboratories, and government organizations and \$200.00 per person for attendees from commercial organizations.

#### **COMPUTING CLASSES SCHEDULED FOR JANUARY 1991**

During January 1991, CTD will offer seven classes. The schedule is appended to this *Newsletter*. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, exten-

sion 2-5405). All prospective attendees should register so that we can gauge the size of classes and notify attendees of any schedule changes. CTD will reschedule or cancel classes with fewer than six registrants *one week* prior to the scheduled date of the class.

*Introduction to Computing Facilities and Services* (one 3-hour session) provides an overview of the computing facilities and services available at Argonne. New Argonne computer users, as well as anyone else interested in computing at Argonne, should attend this class.

*Overview of the Central VAX 8700 for Knowledgeable VMS Users* (one 1-hour session) is for VAX users already familiar with the VAX and the VMS operating system. It is an overview of the locally defined features of the central VAX cluster. Topics include user groups and cost center distinctions, file protections and default file protections, the size of VMS quotas, the names and characteristics of batch queues, efficient use of available disk space with scratch disk space, the SETUP command and applications associated with it, the system back-up frequency (including incremental back-ups and file restoration capabilities), proxy accounts (including VAX proxy for MVS JES3), MultiNet information (including some commonly used TCP/IP node-names), the various applications available on the VAX 8700, and some of the features of local help libraries. Those who have not used a VAX with VMS should instead attend the *Introduction to VAX/VMS* and *Programming in VAX/VMS* classes.

*Introduction to Wylbur for MVS Batch Computing* (one 3-hour session/lab) explains how to use Wylbur, an efficient easy-to-learn interactive editing system ideally suited for users of the IBM MVS batch computing system. You can use Wylbur interactively to create and modify programs, data, and text; to submit IBM MVS and Cray UNICOS batch jobs; and to review IBM MVS and Cray UNICOS batch output.

*Introduction to VAX/VMS* (one 3-hour session) is for first-time VAX/VMS users who need an overview of the features available in VAX/VMS. Attendees will become familiar with available VMS documentation and will learn how to logon to VMS, to create files, to set up sub-directories, to compile and link programs, to submit batch jobs, and to use the online HELP facilities. Also, attendees will learn

how to access the companion computer-based instruction courses, "Introduction to VAX/VMS" and "Introduction to the Extensible VAX Editor." Everyone registering for this class should request an account on the VAX 8700 before attending the class to access the computer-based instruction courses. To request an account, call Account Services at extension 2-5425.

*Programming in VAX/VMS* (one 3-hour session) acquaints VMS users with features of VMS. Topics include programming VAX Fortran; writing DCL (Digital Command Language) procedures; using the VMS system debugger, the runtime library, and system services; and reviewing VMS internals.

*Introduction to UNICOS* (two 3-hour sessions) is for new users who want basic information on UNICOS on the Cray X-MP/14 high-performance computer. The class covers introductory material on the Unix file system, space management, shell programming, job submission, and management of Cray files from the IBM MVS front-end stations or from scientific workstations via Transmission Control Protocol/Internet Protocol (TCP/IP).

*Using CMS with IBM 3270-Compatible Display Terminals* (two 2-hour lectures and two 1-hour labs) is for CMS users on an IBM 3270-compatible display terminal, an IBM or Apple Macintosh personal computer with NCSA tn3270, or an ASCII terminal with the Hydra Protocol Converter. The class is for people who send or receive electronic mail; who organize information in files and obtain information from files; who create and modify data, programs, or text files; or who use applications packages such as Cuechart, SAS, Script, and Tellagraf. Everyone registering for the CMS class must have a VM/SP account before attending the class. To request an account, contact Account Services (Building 221, Room A-147, extension 2-5425).

## CRAY NEWS

### SELECTED PRINTERS ACCESSIBLE VIA LPR FROM THE CRAY

Users of the Cray X-MP/14 high-performance computer can now use the `lpr` command to send printed output to selected printers on the network (see "Printing from Unix Systems to VAX PostScript Printer Queues" in this *Newsletter*).

CTD is continuing to test this service and has included only selected printers. Although this service is widely used in the Unix community, there are many administrative issues to be addressed (including administration for many printers, naming conventions, and charging).

The list of available printers is in the `/etc/printcap` file. For more information (including how to have your printer added to the list), contact Doug Engert at extension 2-5444.

## MANAGEMENT INFORMATION SYSTEMS

### INTEGRATED FINANCIAL SYSTEM UPDATE AND FACET SCHEDULE CHANGE

As the new year begins, we'd like to take this opportunity to remind the financial system users of the financial system closing schedule. Cost Accounting will close the financial system books on the second working day of each month. Normally, the Integrated Financial System (IFS) user reports are submitted on the fourth working day of the month. The reports usually complete executing overnight and complete printing on the fifth working day. Users may check the Current System Status Recorded Message (extension 2-5466) for report availability. Users should make any report selection changes by using the Information Organizer (IO) before the fourth workday to ensure that the changes will be included in that month's reports.

Beginning in January 1991, the Financial Applications Committee to Effect Telesis (FACET) meetings will be held on the second **Wednesday** of each month from 1:30 p.m. to 3:00 p.m. in Building 202, Room B-169. The scheduled 1991 meetings are:

January 9	July 10
February 13	August 14
March 13	September 11
April 10	October 9
May 8	November 13
June 12	December 11

Formerly, FACET meetings were held on the second Tuesday of each month.



## PERSONAL COMPUTING AND WORKSTATIONS

### ELECTRONICS PROVIDES COMPUTER UPGRADES

The Computer Maintenance Group of the Electronics Department stocks a wide variety of upgrades and performance enhancements for many of the personal computers and workstations in use at the Laboratory.

For the IBM PC/XT/AT and compatible personal computers, Electronics can replace the 8088 and 80286 main system boards with a model using an Intel 80386 processor. Both 25 and 33 megahertz system boards are available. These boards can access up to 64 megabytes of 32-bit memory and can accommodate either Witek or Intel math coprocessors. Electronics can install a Small Computer System Interface (SCSI) host adapter card so that the computer can be upgraded to use available internal and external SCSI devices (such as hard disk drives ranging from 30 to 700 megabytes). SCSI compatible drives provide improved error correction and speed and can be used for tape and CD read-only memory (ROM) drives. Electronics stocks Paradise Video Graphics Adapter (VGA) video cards, serial and parallel interfaces, and a few types of memory expansion cards.

Electronics also provides maintenance and upgrade services for many types of computer equipment (including IBM, DEC, Sun, NeXT, and Apple Macintosh).

For further information on upgrades and enhancements to improve your system's operation, call extension 2-6969.

## VAX/VMS NEWS

### USING TEMPORARY AND PERMANENT FILE STORAGE ON THE VAX

There are two file storage areas available to your account on the Argonne central VAX cluster. One is for permanent file storage; the other is for temporary file storage. After seven days, the system automatically deletes temporary files. However, when you

delete your temporary files sooner, you can reduce your disk charges and can increase the pool of temporary disk space available to all users.

When you login, the system creates logical names for these two file areas. `SY$LOGIN_DEVICE` identifies your permanent disk space device (for example, `CC245:`), `SY$LOGIN` identifies your permanent space top level directory, and `SY$SCRATCH` identifies your temporary file space top level directory.

When your account is created on the central VAX cluster, you are given disk quotas for each type of storage. A disk quota is an upper limit to the amount of disk space that you may use; it is not a guarantee of space available. You are only charged for the disk space you use, not for your quota.

Each new user is assigned a quota of 40 megabytes of permanent disk storage and 250 megabytes of temporary disk storage. These two file spaces are on separate disks. To use a file on your temporary space, code the full VMS file name specification (for example, `SY$SCRATCH:myfile.txt`). You can code `SY$SCRATCH` in file specifications that appear in Digital Command Language (DCL) commands, logical name assignments, and application program open statements.

To find out how much space you have used and you have available on these two file spaces, enter the following DCL commands (file sizes are given in number of 512-byte blocks):

```
$ SHOW QUOTA /DISK=SY$LOGIN
$ SHOW QUOTA /DISK=SY$SCRATCH
```

Permanent disk space for users in the same cost center is assigned to the same physical disk. Typically, many cost centers share the same physical disk. When a physical disk begins to fill up, CTD will move an entire cost center to a new disk that has sufficient available space for the new cost center. Cost center file system moves are possible as long as there is sufficient space on another user disk to receive the cost center's files. To avoid difficulties when CTD moves your cost center's files to another disk, never use the physical disk name in any programs or DCL procedures. You will also avoid difficulties when you move from one cost center to another by using the device name `SY$LOGIN_DEVICE`: instead of your current cost center's device name (for example, `CC245:`).

Occasionally, you may have available space in your disk quota but not sufficient space on the physical disk. This situation can happen when other users' file spaces grow and begin to fill up the disk. There are two ways to find out how much space is left on the physical disk. When you log onto the VAX 8700, the system checks the amount of disk space available on your permanent space physical disk. If the amount is less than a threshold value, a message appears on your terminal informing you of the percentage of the physical disk that is free. For example: "The physical disk that contains your files has only 3% free space left. Please delete any files that you do not need." The other way is to enter the following DCL commands:

```
$ SHOW DEVICE SYS$LOGIN
$ SHOW DEVICE SYS$SCRATCH
```

These commands display the number of free 512-byte blocks on the disks.

#### **HOW TO LIMIT THE NUMBER OF VERSIONS OF A FILE ON THE VAX**

VMS files include the following components as part of the file specification: file name, file type, and version number. Version number is used as part of the file specification that uniquely distinguishes a file from any other file. For example, it can be used to denote a file whose contents have been updated from a previous copy of a file. Many VMS commands and programs (for example, copy, link, and edit/tpu) will create new versions of a file. The previous versions become an audit trail of the changes and allow you to recover a previous version, if necessary.

Multiple versions of files can quickly accumulate and occupy a substantial amount of your disk space. To avoid keeping unneeded file versions, you can delete them manually, or you can set the system parameters to delete older versions automatically.

To remove unneeded versions manually, use the PURGE command. For example, to remove all but the last three version of myfile.dat, enter:

```
$ PURGE /KEEP=3 myfile.dat
```

If you know how many versions of files you want to keep in a directory, set version limits on that

directory. The directory version limit applies to all files in that directory. For example, if you only need the last two versions of files in a subdirectory [.mysubdir], enter:

```
$ SET DIRECTORY /VERSION_LIMIT=2 [.mysubdir]
```

Thereafter, when a third version of a file in directory [.mysubdir] is created, the system deletes the oldest version automatically.

You can also set a version limit on a specific file. For example, to keep the last three versions of a file, enter:

```
$ SET FILE /VERSION_LIMIT=3 myfile.dat
```

Another method of managing files is by the date of the file's last access. If you have not used a file in the last six months, the file may be a candidate for either deletion or migration to tape.

#### **HOW TO IDENTIFY AND REMOVE FILES YOU NO LONGER USE ON THE VAX**

VMS maintains four dates for each file. These dates can help you manage your file systems. The dates are:

Creation Date:	date the file was created
Modification Date:	date of last modification
Back-Up Date:	date of last back-up
Expiration Date:	date the file expires

On the Argonne central VAX cluster, the system sets file expiration dates. When you access a file whose expiration date has passed (that is, the file has expired), a new expiration date is set. The new expiration date is set to seven days from the current date. Thus, the expiration date is roughly the date of last access. The system takes no action when a file expires (that is, the file is not deleted). It merely provides a mechanism for better file management.

Most VMS file manipulation commands (for example, COPY, DELETE, DIRECTORY, RENAME, and PURGE) and the BACKUP utility allow you to select files by one of the above four dates. The date selection qualifiers are /CREATED (default), /MODIFIED, /BACKUP, and /EXPIRED. The qualifiers /BEFORE and /SINCE let you further refine your file selection, based on the value of the



date field picked. The same command qualifiers work with all of the above file manipulation commands and with the BACKUP utility.

For example, one of your applications creates files with file type .PATTERNS in subdirectory [.ACCEL]. After 60 days, you no longer need these files. To back up these inactive files from your file space, enter:

```
$ DIRECTORY /EXPIRED /BEFORE=(TODAY-60-) [.]accell)*.patterns
$ DELETE /EXPIRED /BEFORE=(TODAY-60-) [.]accell)*.patterns
```

OR

```
$ BACKUP /EXPIRED/BEFORE=(TODAY-60-) [.]accell)*.patterns -
$1$MUA0:patterns.bck
```

For a full discussion of these other DCL command qualifiers, see VMS online HELP or the *VAX/VMS DCL Dictionary* (AA-Z200C-TE), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

There are two tools on the central VAX cluster to help you manage your file space: FSANALYZE and DM. FSANALYZE is a DCL command procedure that analyzes files by expiration date. It starts in a directory you specify and analyzes files in that and all lower level directories. FSANALYZE displays a tabular report on your terminal that summarizes the files by date of last access. File summaries are reported by using the categories: less than one month, one to three months, three to six months, six to twelve months, and over twelve months. FSANALYZE also generates a file for each category that lists individual files, file sizes, and expiration dates. FSANALYZE creates the following files in your default directory:

```
SUMMARY.SCN
LESSTHANONE.SCN
ONETOTHREE.SCN
THREETOSIX.SCN
SIXTOTWELVE.SCN
OVERTWELVE.SCN
```

To run FSANALYZE on your permanent file space, enter:

```
$ FSANALYZE SYS$LOGIN
```

DM is a full screen utility that gives you a visual representation of your directory structure. DM provides a simple single keystroke command interface to work with your files and directory structures. You can select files or directories with the arrow keys on your keyboard; then, you can use single keystroke commands to perform common file operations (such as copy, purge, delete, rename, and print). You can also move up and down your directory tree with single keystroke commands. DM offers additional operations to the more experienced DM user.

To use DM, enter:

```
$ DM
```

To learn more about DM, enter any of the following commands:

```
$ HELP DM
$ DM HELP
$ TYPE /PAGE SYS_ANLCOMMON:[DM]DM_USER_DOC.TXT
```

Use FSANALYZE to identify files you no longer need; use DM to delete them.

### PRINTING FROM UNIX SYSTEMS TO VAX POSTSCRIPT PRINTER QUEUES

Unix users can now send output to PostScript printers controlled by the Argonne central VAX cluster. Output can be either PostScript or ASCII text. The PostScript printer must be controlled by the AlisaPrint software. PostScript printers driven by the Argonne central VAX cluster have been installed in many work areas around the Laboratory. A list of PostScript printers and their locations is appended to this *Newsletter*. If a VAX cluster PostScript printer is not controlled by the AlisaPrint software, Unix users may send only PostScript files to it. If the printer is not a PostScript printer, Unix users may send only text files to it.

Unix users have expressed the need to print both ASCII text and PostScript files on their PostScript printers. Therefore, CTD has modified the line printer daemon (lpd) on the central VAX cluster to accommodate files in either format. By convention, PostScript files have %! as their first two characters. Files with %! as the leading characters are queued as PostScript files; files with different leading characters are queued as ASCII text files.



To send print jobs from your Unix system to a printer driven by the central VAX cluster, your system administrator has to configure your Unix system for printing to the print queue. For example, to send print jobs to the Graphic Arts queue named *galino*, the system administrator has to add the following entry to the */etc/printcap* file on your Unix system:

```
galino|Graphic Arts Linotype L300P Imagesetter on ANLCV1:\
:rm=anlcv1.ctd.anl.gov:rp=galino:\
:sd=/var/spool/galino:lp=:
```

The system administrator also needs to create the spool directory */var/spool/galino* on your system. If your system's host IP number does not begin with 130.202., have the system administrator contact Barry Miller at extension 2-6808 to authorize the central VAX cluster to accept print jobs from your system.

To print the TeX input file "flowpaper.tex" and the TeX PostScript output file "flowpaper.ps" on *galino*, enter:

```
lpr -P galino flowpaper.tex flowpaper.ps
```

Graphic Arts PostScript printers defined to the central VAX cluster are *galino* (the Linotype L300P Imagesetter), *gal11x17* (the QMS 11-by-17 inch printer), and *gacolor* (the QMS color printer). To specify a form for the QMS color printer, use *gacolrsp* (standard-size paper), *gacolrlp* (large-size paper), *gacolrst* (standard-size transparencies), or *gacolrlt* (large-size transparencies). Graphic Arts will print a free page for first-time users so that they can see how their output will look. Call Lee Wagar at extension 2-5603.

## BITS & BYTES

### RECENTLY UPDATED AND PUBLISHED DOCUMENTS

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new document is available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy):

*The University of Chicago Agreements with Personal Computer Vendors* (December 6, 1990) contains the latest lists of personal desktop computer discounts available through the University of Chicago to Argonne employees for both personal and Laboratory purchases. This revised price list supersedes the price list of October 29, 1990.

## USERS GROUP HIGHLIGHTS

### MINUTES OF COMPUTER USERS GROUP MEETING HELD DECEMBER 4, 1990

Dotti Bingaman (Environmental Assessment and Information Sciences) opened the meeting at 3:05 p.m.

**VAX Disk Concerns.** Rich Raffenetti (Computing and Telecommunications) reported on the current status and plans for the VAX cluster. The workload on the VAX was higher during October and November 1990 than last year. The current upgrade plans include a VAX 6000 model 410, five or six 1.5 gigabyte disks, a HSC70 controller, and trading in the VAX 11/750 and VAX 8250. Besides the increased computing and disk space, this configuration makes possible the future use of a vector processor, multiple processors, and a Fiber Distributed Data Interface (FDDI).

The current workload on the VAX cluster includes long jobs (more than 100 CPU hours), large models (up to 250 megabytes), ANSYS jobs, the JOSHUA code system, the Argonne Information Management (AIM) system, acting as the network server for access to IBM Personal Computers and Apple Macintoshes, a VAX environment for Cray usage, and X Window applications. These diverse applications have caused a shortage of long-term disk space.

CTD will use the new disks to increase the space for several applications. Of the 7.5 to 9 additional gigabytes, the AIM system will need about 4 gigabytes by the end of the year. CTD will use one disk as an operational spare. CTD plans to use most of the 2.5 to 4 gigabytes left for user permanent space.

Currently, the upgrade plan is under review. CTD hopes to receive the equipment in February

1991 and to make it available in March 1991. The money is from General Purpose Equipment (GPE) funds.

In response to a question from the previous CUG meeting, CTD determined the disk space used in multi-version files. If users were to remove all files before the last five versions, only 10 percent of the space would be freed. If only the last three versions were saved instead of the last five versions, only 4 percent of the space would be recovered. Users seem to keep their files fairly clean of multiple versions, and there are valid uses for multiple versions. CTD concluded that controlling and limiting the number of versions of a file is not an effective way to free additional disk space.

**Status of Distributed Unix System.** Fred Moszur (Computing and Telecommunications) reported on the activities within CTD that handle the Unix systems distributed throughout the Laboratory, either directly or indirectly. The CTD activities include the Network File System (NFS), print servers, education, and graphics.

NFS is in the /n2 file system on the Cray, where CTD handles performance and security considerations. The installation of MultiNet's NFS on the VAX 8700 provides this service to VAX cluster users. Currently, CTD is studying the use of NFS for distributed data storage, back-up, and archiving services.

CTD is installing and testing line printer daemons that enable distributed Unix users to use the `lpr` command to send output to central printers. Similarly, these line printer daemons enable VM, MVS, VMS, and Cray users to send output to printers attached to distributed Unix systems.

Graphics and visualization is possible with Disspla and X Window on the Cray, Disspla on the VAX 8700, and video recording for X-Image (which is in development). Additional assistance in all areas is available through service requests. System administration and application programming are also available.

To determine the Unix needs of the divisions and programs at the Laboratory, CTD is preparing a survey that should go out in December 1990. This survey will identify the important divisional needs that CTD could help address. Mail name services

interest many users, and one prototype is currently being tested. This prototype would simplify the address a person needs to send mail to someone at Argonne.

**Cray Disk Storage Options.** Doug Engert (Computing and Telecommunications) reported on the current disk allocations on the Cray and possible changes. Currently, /n1 (permanent storage) has 3.8 gigabytes, about 19 percent free; /n2 (NFS permanent storage) has 2.7 gigabytes, about 32 percent free; /s1 (short-term storage) has 3.1 gigabytes, about 74 percent free; and /t1 (life of job storage) has 4.3 gigabytes, about 99 percent free. It is possible to make /n1 and /n2 equivalent or to make /n2 the home directory, if the user requests it.

There are several options available in the future. There could be numerous file systems (perhaps by cost code) to enhance the manageability of the system and back-ups. There is a UNICOS data management system that only works with tapes in the current version. This system keeps the directories online but migrates files to tapes under specified conditions. When a user needs the file, it can be brought back automatically onto the disks. It works with NFS as well. This system would allow automatic or explicit migration of files. CTD plans to wait until UNICOS Version 6 is out before looking further.

Doug reminded users that, although NFS on the Cray is more secure than standard NFS implementations, people with sensitive data should not have that data on and accessible from the NFS system.

**Status of Cray Memory Upgrade.** Doug continued discussing the status of the new memory for the Cray. The purchase requisition is now in Procurement. The new memory will double the memory of the Cray. Cray has been filling orders in about a month.

**Job Scheduling on the Cray.** Doug discussed possible changes in the job scheduling classes on the Cray. Floyd Dunn (Reactor Analysis) commented that five one-hour jobs could tie up the Cray all day, so that those jobs and all the others waiting would not be finished during the normal working hours at the Laboratory. This situation effectively blocks users from getting turnaround during the day, especially with floors causing virtually everyone to use the highest priority class. Several suggestions were



made (including limiting the number of large jobs, restricting when some jobs could run, and changing the time limits for the shortest job class). It was generally felt that the shortest class was too short, or the time limit was too inclusive in the next class. To determine which option might work best and to get a better feel for the job mix on the Cray, CTD will analyze the actual running times for Cray jobs. This analysis should provide guidance on the best method for job scheduling, so that a few long jobs do not completely block the system.

**VM/XA on the IBM 3084.** Jerry Davison (Computing and Telecommunications) reported on the plans for installing and testing VM/XA on the IBM 3084 and moving to MVS/XA in the future. CTD expects delivery at any time. CTD will have to change the software and hardware mode to accommodate the upgraded operating system. IBM warns that application programs need to be tested to make sure they work properly (see "CTD Launches the XA Project" in this *Newsletter*).

The CUG meeting adjourned at 4:30 p.m.

Ken Miles, CUG Secretary

#### **MINUTES OF MACINTOSH USERS GROUP MEETING HELD DECEMBER 12, 1990**

Bob Kampwirth (Materials Science) opened the meeting at 11:00 a.m. Lee Wagar (Graphic Arts) sent the meeting announcement with QuickMail or Email, when possible, and with paper to those who have no electronic mail capabilities. If you have an electronic mail address and are not receiving an electronic meeting announcement, contact Lee Wagar at extension 2-5603.

Jeff Morgan, a field marketing representative from the Oak Forest office of Innovative Data Design (IDD), 708/535-0070, demonstrated their new version of MacDraft, MacDraft 2.1. MacDraft was originally a Lisa product used on the Apple Macintosh. This new version of MacDraft was written for the Apple Macintosh; so it is faster than the old version and has some new features. They are competing for the market now served by MacDraw II and have many of the same features. Some special features of MacDraft 2.1 are the ability (1) to import scanned images in TIFF format and to duplicate, resize, and crop; (2) to read in native MacDraw II documents; (3) to generate PICT files that you can

place in Microsoft Word without arrows and dashed lines shifting; (4) to repeat pasting of an object with a fixed datum point; (5) to end marks on lines with circles and squares as well as arrows; (6) to draw any portion of an ellipse; and (7) to have different scales in different drawing layers to blow up a detail easily. Jeff recommended Dreams, the IDD high-end draw program, for the full-time user and MacDraft for the user who only uses a drawing program two or three times a week. The MacDraft 2.1 upgrade is \$69; the list price is \$399. Argonne is entitled to a 40 percent discount for new copies of MacDraft.

Mark Fechner and Brian Shaw, Videographics Corporation of Chicago, 312/642-6652, demonstrated a 3-D imaging and animation program on an Apple Macintosh IIfx. They sell and maintain the program called Dimensions Presenter from Visual Information Development. The program is very powerful but easy to use, and the 3-D images created are of excellent quality. The Dimensions Presenter program does full-color and dynamic animations of the 3-D images with ease. The rendering program takes a little longer to work, but the results look great. The Dimensions Presenter program costs \$2,195. Graphic Arts has been waiting for this kind of program.

Ray Carlson (Computing and Telecommunications) reported on a procedure to export Mass-11 documents on the VAX to Microsoft Word on the Apple Macintosh with much of the formatting intact. Within Mass-11, the document file should be exported in a DCA format. From the VAX, transfer the file to the Apple Macintosh in binary mode. A file transfer program such as Kermit should work here. Once on the Apple Macintosh, the DCA format should be translated into an RTF (rich text format) file by using Apple File Exchange from Apple or from Microsoft. Finally, use Microsoft Word to read in the RTF file.

The January 1990 meeting will look at HyperCard 2.0, both as a broad-based environment for many tasks and as a data acquisition system for use in the Laboratory. The February 1990 meeting will focus on multimedia presentations (including the recording of CD read-only memory, video output, and Apple Macintosh output to videotape). The March 1990 meeting could be a 1/2 day presentation in the cafeteria for new Apple Macintosh products and for System 7.0, if it is ready to be released. Oth-



er topics requested are (1) a comparison of various data acquisition programs (including LabView) and (2) a look at the ways to exchange data and text between operating systems (including the Apple Macintosh/disk operating system exchange solutions).

The Apple Macintosh Users Group normally meets the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact

Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee Wagar (Graphic Arts), Jim Lewellen (Computing and Telecommunications), or Ralph Leonard (Chemical Technology) for further meeting information.

The meeting adjourned at 12:20 p.m.

Ralph Leonard, Macintosh Users Group Secretary

# WORKLOAD STATISTICS (OCTOBER 31 THROUGH NOVEMBER 29, 1990)

## NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	END OF MONTH	ACTIVE DURING MONTH
CMS	1,227	1,229	445
Wylbur	1,648	1,651	346
MVS TSO	57	57	15
CICS	2,177	2,182	136
MVS Batch	2,177	2,182	670
VAX/VMS	614	620	326
Cray	340	335	140
All Systems	2,177	2,182	989

## INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				SESSION TIME (HRS)	CPU TIME (HRS)
	PRIME	NIGHT	WEEKEND	TOTAL		
<b>INTERACTIVE</b>						
CMS	10,550	2,380	1,969	14,899	38,745.6	79.10
Wylbur	6,525	263	392	7,180	7,720.9	6.25
MVS TSO	348	0	2	350	489.8	0.95
CICS	n.a.	n.a.	n.a.	n.a.	n.a.	4.04
VAX/VMS	18,216	3,305	160	21,681	20,843.5	178.16
Cray	2,183	175	239	2,597	1,049.2	17.43
<b>IBM BATCH</b>						
Class U	8,494	1,647	1,236	11,377	n.a.	17.45
Class W	18,469	2,597	1,335	22,401	n.a.	128.11
Class X	13	615	19	647	n.a.	36.75
Class Y	0	11	279	290	n.a.	23.48
Nonmain	16,079	2,424	1,315	19,818	n.a.	0.00
Total	43,055	7,294	4,184	54,533	n.a.	205.79
<b>CRAY BATCH</b>						
u	2,183	175	239	2,597	n.a.	30.67
w	3,086	232	401	3,719	n.a.	194.89
x	331	77	172	580	n.a.	66.64
y	3,431	867	1,004	5,302	n.a.	150.69
Total	9,031	1,351	1,816	12,198	n.a.	593.58
<b>VMS BATCH</b>						
W BATCH	1,306	412	160	1,878	n.a.	71.71
X BATCH	10	58	12	80	n.a.	56.06
Y BATCH	2	2	12	16	n.a.	12.27
Total	1,318	472	184	1,974	n.a.	140.04

## INPUT/OUTPUT

Lines Printed	
Local	54,666,651
Remote	59,037,562
Fiche	42,428,561
Cards Punched-Local Only	20,504
Tape Mounts	7,681
Microfiche Developed	5,094
Microfiche Frames Developed	942,214

## GRAPHICS

	# OF JOBS	# OF FRAMES
CalComp Jobs	50	n.a.
Matrix 35mm Color	97	305
Matrix-8 x 10	3	3
Matrix-Negative	0	0
FR80 Film Plots		
35mm Black/White/Unsprocketed	0	0
35mm Black/White/Sprocketed	0	0
35mm Color	0	0
16mm Black/White/Sprocketed	0	0
16mm Color	0	0

## DATA MANAGEMENT

Tapes Stored	24,580
New Tapes Saved	383
Tapes Released	1,814
Datasets Exported to Tape	1,054
Datasets Imported from Tape	674

\* n.a. = not applicable

# AVAILABILITY STATISTICS, BY MACHINE (OCTOBER 31 THROUGH NOVEMBER 29, 1990)

	Monthly Totals	Hardware	Scheduled Software	Other	Hardware	Unscheduled Software	Other
CNS							
All Shifts							
Interruptions	5.00	0.00	3.00	1.00	1.00	0.00	0.00
Hrs Unavailable	8.51	0.00	1.35	5.83	1.33	0.00	0.00
MTF/Unscheduled	711.48				711.48		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Hrs Unavailable	1.33	0.00	0.00	0.00	1.33	0.00	0.00
MTF/Unscheduled	262.66				262.66		
NYLBUR							
All Shifts							
Interruptions	7.00	1.00	4.00	1.00	0.00	1.00	0.00
Hrs Unavailable	13.25	1.10	2.40	6.16	0.00	3.58	0.00
MTF/Unscheduled	706.75					706.75	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
MVS TSO							
All Shifts							
Interruptions	6.00	1.00	4.00	1.00	0.00	0.00	0.00
Hrs Unavailable	9.66	1.10	2.40	6.16	0.00	0.00	0.00
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
JES3							
All Shifts							
Interruptions	6.00	1.00	4.00	1.00	0.00	0.00	0.00
Hrs Unavailable	9.20	1.01	2.10	6.08	0.00	0.00	0.00
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
CICS							
All Shifts							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
VAX/VMS (VAX 8700)							
All Shifts							
Interruptions	10.00	4.00	4.00	0.00	1.00	1.00	0.00
Hrs Unavailable	22.78	16.01	1.83	0.00	3.43	1.50	0.00
MTF/Unscheduled	348.60				697.21	697.21	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2.00	0.00	0.00	0.00	1.00	1.00	0.00
Hrs Unavailable	4.93	0.00	0.00	0.00	3.43	1.50	0.00
MTF/Unscheduled	129.53				259.06	259.06	
CRAY							
All Shifts							
Interruptions	15.00	2.00	9.00	1.00	3.00	0.00	0.00
Hrs Unavailable	28.95	5.78	17.76	4.33	1.06	0.00	0.00
MTF/Unscheduled	230.35				230.35		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	4.00	0.00	1.00	0.00	3.00	0.00	0.00
Hrs Unavailable	1.73	0.00	0.66	0.00	1.06	0.00	0.00
MTF/Unscheduled	87.42				87.42		



COMPUTING CENTER USE IN DOLLARS BY COST CENTER (OCTOBER 31 THROUGH NOVEMBER 29, 1990)

CC	CENAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
ADVANCED PHOTON SOURCE							
130	ADVANCED PHOTON SOURCE DIV	\$198	\$262	\$0	\$351	\$244	\$1,054
272	ADVANCED PHOTON SOURCE	\$84	\$0	\$0	\$19	\$43	\$146
340	APS DIVISION MANAGEMENT	\$18	\$0	\$0	\$0	\$29	\$47
341	APS ACCELERATOR PHYSICS	\$251	\$1,862	\$290	\$313	\$126	\$2,841
342	APS DIAGNOSTICS	\$0	\$15	\$0	\$0	\$43	\$58
343	APS LINAC	\$0	\$169	\$0	\$1	\$43	\$213
344	APS RF	\$3	\$0	\$0	\$0	\$0	\$3
345	APS VACUUM	\$6	\$2,555	\$0	\$191	\$2,619	\$5,371
347	APS CONTROLS	\$47	\$2	\$0	\$1	\$6	\$56
348	APS MAGNETS	\$64	\$2	\$0	\$0	\$14	\$80
349	APS POWER SUPPLIES	\$30	\$0	\$0	\$1	\$0	\$30
350	APS DIVISION MANAGEMENT	\$12	\$0	\$0	\$0	\$8	\$20
351	APS INSERTION DEVICES	\$49	\$42	\$0	\$2	\$16	\$108
352	APS BEAM LINE FRONT ENDS	\$119	\$1,825	\$0	\$125	\$1,424	\$3,492
353	APS BEAM LINE INSTRUMENTATION	\$15	\$110	\$0	\$13	\$219	\$457
361	APS PROJECT DIRECTION	\$24	\$0	\$0	\$0	\$17	\$42
362	APS MANAGEMENT GENERAL	\$20	\$0	\$0	\$0	\$48	\$69
SUBTOTAL		\$941	\$6,843	\$290	\$1,114	\$4,899	\$14,087
ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH							
110	BIO & MED RES DIV	\$1,781	\$749	\$86	\$1,129	\$2,070	\$5,815
125	TECHNOLOGY TRANSFER CENTER	\$71	\$0	\$0	\$6	\$204	\$282
149	ENVIRONMENTAL RESEARCH DIV	\$2,901	\$194	\$401	\$1,075	\$396	\$5,167
155	ENERGY SYSTEMS DIVISION	\$7,171	\$3,180	\$17,780	\$2,647	\$931	\$31,708
165	ENV ASSESS & INFO SCI DIV	\$3,568	\$13,453	\$37,209	\$1,723	\$4,541	\$60,494
174	ENER/ENV/BIO PROG DIR	\$11	\$0	\$0	\$0	\$100	\$111
246	ES-NAT'L ENERGY SOFTWARE CTR	\$83	\$0	\$0	\$870	\$614	\$1,570
274	ENER/ENV/BIO RES PROG ADM	\$83	\$0	\$0	\$5	\$188	\$276
SUBTOTAL		\$15,672	\$17,576	\$55,476	\$7,454	\$9,245	\$103,423
ENGINEERING RESEARCH							
102	EBR-II PROJECT-ANL WEST	\$1,665	\$24	\$7	\$1,218	\$180	\$3,093
104	FUELS AND PROCESSES	\$1,038	\$10	\$3	\$133	\$426	\$1,610
107	CHEMICAL TECHNOLOGY DIVISION	\$559	\$187	\$0	\$807	\$1,776	\$3,330
112	REACTOR ANAL & SAFETY	\$20,642	\$1,531	\$3,746	\$6,053	\$15,038	\$47,010
114	MATLS & COMP TECH DIV	\$4,072	\$2,513	\$135	\$2,552	\$1,656	\$10,926
115	ENGINEERING PHYSICS DIVISION	\$6,973	\$1,153	\$25,210	\$4,775	\$-21,212	\$16,899
116	REACTOR ANALYSIS	\$40,502	\$7,071	\$74,314	\$12,154	\$26,843	\$160,883
117	APPLIED PHYSICS-ANL WEST	\$2,348	\$16	\$5,324	\$162	\$386	\$8,236
118	REACTOR EXP & EXAM DIV	\$3,028	\$437	\$2	\$273	\$296	\$4,035
119	ANALYTICAL LABORATORY ANL-WES	\$0	\$0	\$0	\$0	\$100	\$100
171	ENGRG RES PROG DIR	\$3	\$0	\$0	\$0	\$106	\$109
197	SPECIAL PROJECTS OFFICE	\$190	\$1	\$0	\$7	\$136	\$333
211	ENGINEERING PHYSICS DIVISION	\$51	\$11	\$0	\$20	\$3,067	\$3,149
269	CHEM TECH DIV-ANALYTICAL CHEM	\$92	\$0	\$0	\$16	\$105	\$214
271	ENGRG RES PROG ADMIN	\$177	\$0	\$0	\$1	\$225	\$403
SUBTOTAL		\$81,340	\$12,954	\$108,740	\$28,170	\$29,128	\$260,332
PHYSICAL RESEARCH							
105	MATERIALS SCIENCE DIVISION	\$2,340	\$4,864	\$7,962	\$1,548	\$690	\$17,403
109	PHYSICS DIV	\$2,216	\$843	\$11	\$1,401	\$642	\$5,113
120	CHEMISTRY DIV	\$1,341	\$2,393	\$12,122	\$443	\$972	\$17,271
136	INT PULSE NEUT SOURCE PROG	\$132	\$1,311	\$2,325	\$348	\$307	\$4,422
137	HIGH ENERGY PHYSICS DIV	\$426	\$1,253	\$22,106	\$720	\$886	\$25,391
139	DIV OF EDUCATIONAL PROGRAMS	\$597	\$0	\$0	\$79	\$143	\$820
145	MATHEMATICS & COMPUTER SCI DI	\$193	\$50	\$3,531	\$152	\$4,602	\$8,528
146	CTD DIV - SCI APPL & RES	\$22	\$0	\$0	\$41	\$4	\$66
273	PHYSICAL RESEARCH PROGRAM ADM	\$61	\$0	\$0	\$23	\$137	\$221
SUBTOTAL		\$7,328	\$10,714	\$48,056	\$4,755	\$8,382	\$79,236
EXTERNAL							
751	FERMI NATIONAL LABORATORY	\$625	\$0	\$0	\$265	\$522	\$1,412
752	NAVY	\$13,283	\$0	\$0	\$1,951	\$7,839	\$23,073
753	MORGANTOWN ENERGY TECH CENTER	\$12	\$0	\$0	\$800	\$0	\$812
754	DEPARTMENT OF ENERGY AT ANL	\$41	\$0	\$0	\$174	\$189	\$404
756	LOS ALAMOS	\$12	\$0	\$0	\$0	\$0	\$12
760	ABBOTT LABORATORIES	\$9	\$0	\$54	\$0	\$0	\$63
763	GENERAL ELECTRIC COMPANY	\$0	\$1	\$0	\$0	\$0	\$1
765	WESTINGHOUSE HANFORD COMPANY	\$0	\$1	\$1	\$0	\$0	\$3
766	BECHTEL NATIONAL, INC.	\$0	\$52	\$60	\$17	\$1	\$130
775	SMITHSONIAN	\$0	\$0	\$0	\$0	\$4	\$4
777	UNIVERSITY OF CHICAGO AT ANL	\$23	\$0	\$0	\$151	\$26	\$332
778	ARGONNE CREDIT UNION	\$6	\$0	\$0	\$0	\$0	\$6
779	UNIVERSITY OF ILLINOIS AT CHI	\$6	\$0	\$0	\$0	\$0	\$14
780	NEW BRUNSWICK LABORATORY	\$14	\$0	\$0	\$0	\$0	\$9
781	STATE OF ILL. DEPT. MENTAL HE	\$0	\$0	\$0	\$0	\$0	\$0
782	PACKER ENGINEERING	\$3	\$18	\$0	\$0	\$0	\$21
783	WEST VALLEY NUCLEAR SERVICES	\$3,404	\$0	\$0	\$21	\$77	\$3,502
784	SUPERCONDUCTING SUPER COLLIDER LABS	\$6	\$291	\$236	\$104	\$0	\$637
SUBTOTAL		\$17,444	\$362	\$352	\$3,482	\$8,667	\$30,308

## SUBJECT INDEX FOR CALENDAR YEAR 1991 (1/91)

These entries refer to *Newsletters* published in 1991. All previous *Newsletters* are indexed in the December 1990 issue of the *Newsletter* or use the LOOKUP command in CMS, Wylbur, and distributed VAX computers.

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## COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering seven classes. There is no charge for attending classes, unless otherwise indicated. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the class and notify attendees of any schedule changes. CTD will reschedule or cancel any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

### INTRODUCTION TO COMPUTING FACILITIES AND SERVICES

Goals:	To develop an overview of available computing facilities and services provided by CTD.
Length of Class:	One 3-hour session
Date and Time:	January 10, 1991 (Thursday), 1:30 p.m. to 4:30 p.m.
Location:	Building 221, Room A-261
Suggested Reading:	<i>Guide to Computing at ANL</i> (ANL/TM 336, REVISION 2) <i>Recommended Documentation for Computer Users at ANL</i> (ANL/TM 379, REVISION 2) <i>Guide to Telecommunications at ANL</i> (ANL/TM 422, REVISION 1)
Instructor:	Fred Moszur

### OVERVIEW OF THE CENTRAL VAX 8700 FOR KNOWLEDGEABLE VMS USERS

Goals:	To understand the differences between the central VAX 8700 and the other VAXes at ANL relating to the following topics: user groups and the use of cost centers for distinguishing these groups, file protections, the size of VMS quotas, the names and characteristics of batch queues, available disk space, the <b>SETUP</b> command, the System Back-Up Frequency, proxy accounts, MultiNet information, various applications, and features of local help libraries.
Prerequisite:	Good knowledge of the VAX and the VMS operating system
Length of Class:	One 1-hour session
Date and Time:	January 11, 1991 (Friday), 9:00 a.m. to 10:00 a.m.
Location:	Building 221, Room A-261
Instructor:	Dave Lifka

## INTRODUCTION TO WYLBUR FOR MVS BATCH COMPUTING

Goals: To learn to use Wylbur, an interactive system that provides a convenient interface for IBM MVS batch processing. To learn about the IBM MVS batch system at Argonne (including how to compile and execute programs and obtain printer output). Wylbur is efficient, easy-to-learn, and powerful for editing data and programs and for submitting jobs for IBM batch execution.

Length of Class: One 3-hour session/lab

Date and Time: January 15, 1991 (Tuesday), 9:00 a.m. to noon

Location: Building 221, Room A-261

Suggested Reading: *SLAC Wylbur Tutorial*  
*OBS Wylbur Reference Manual*

Instructor: Mike Thommes

## INTRODUCTION TO VAX/VMS

Goals: To learn some basic concepts on VAX/VMS (including how to logon to VMS, create files, set up subdirectories, compile and link programs, submit batch jobs, use the online HELP facilities, and access the companion computer-based instruction courses in VMS).

Length of Class: One 3-hour session

Date and Time: January 16, 1991 (Wednesday), 9:00 a.m. to noon

Location: Building 221, Room A-261

Instructor: Dave Lifka

## INTRODUCTION TO UNICOS

Goals: To learn the basics of the Cray UNICOS file system, space management, and shell programming, as well as basic Unix commands. To learn how to use the Network Queueing System (NQS) for Cray batch processing and how to submit work and to manage Cray files from the IBM MVS front-end station and the Laboratory-Wide Local Area Network.

Length of Class: Two 3-hour sessions

Dates and Time: January 16 and 21, 1991 (Wednesday and Monday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-261

Suggested Reading: *A Practical Guide to UNIX System V* (0-8053-8915-6)  
*UNICOS Primer* (SG-2010)

Instructor: Tom Canfield



## PROGRAMMING IN VAX/VMS

**Goals:** To learn to use the VAX/VMS system. This class will include VAX Fortran programs, suggestions for writing basic Digital Command Language (DCL) command procedures (including a LOGIN.COM), the usage of the VMS system debugger and the interprocess communications features, and an overview of the aspects of VMS internals affecting program performance.

**Length of Class:** One 3-hour session

**Date and Time:** January 21, 1991 (Monday), 9:00 a.m. to noon

**Location:** Building 221, Room A-261

**Instructor:** Dave Lifka

## USING CMS WITH IBM 3270-COMPATIBLE DISPLAY TERMINALS

**Goals:** To learn to use CMS with an IBM 3270-compatible display terminal, an IBM or Apple Macintosh personal computer with NCSA tn3270, or a line-oriented terminal capable of using the Hydra Protocol Converter to send and receive electronic mail; to write documents and memos; to organize information in files; to create program, text, and data files; to manipulate files with the editor; to invoke programs like statistical and graphic packages; and to get printed reports.

**Length of Class:** Two 2-hour lectures  
Two 1-hour labs

**Dates and Time:** January 22 and 23, 1991 (Tuesday and Wednesday), 1:30 p.m. to 4:30 p.m.

**Location:** Building 221, Room A-216

**Suggested Reading:** *IBM VM System Product: CMS Primer (SC24-5236)*  
*CMS at ANL (ANL/TM 423)*

**Instructor:** Pete Bertoncini

## COMPUTER-BASED TRAINING COURSES

Currently, CTD offers one computer-based training course in CMS and five courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

### IBM CBT Course

(Enter SLFTEACH at the CMS prompt.)

SLFTEACH Introduction and Advanced Concepts of Xedit

### DEC CBT Courses on the Central VAX 8700

(Enter RUN "course name" at the DCL level.)

Course Name	Course Title
VMSCAI	Introduction to VAX/VMS
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers

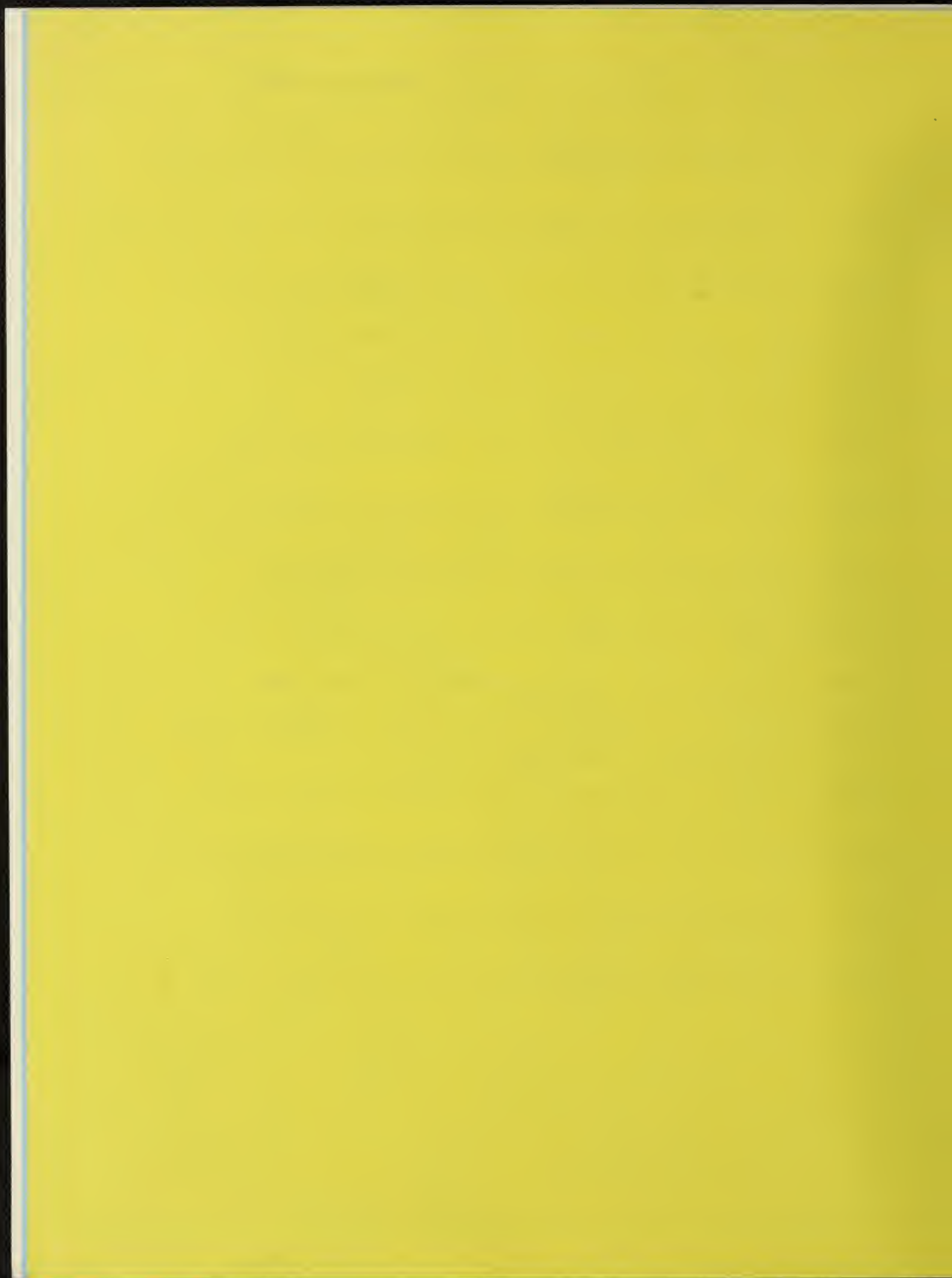




## POSTSCRIPT PRINTERS DRIVEN BY THE CENTRAL VAX CLUSTER

Most of these printers are private printers. Before sending any files to these printers, make sure that they are available for you to use.

- 208E218 - Engineering Physics Apple LaserWriter in Building 208,  
Room E-218
- 212C202 - Materials Science Apple LaserWriter in Building 212,  
Room C-202
- 212E204 - Materials Science Apple LaserWriter in Building 212,  
Room E-204
- 223LW1 - Materials Science Apple LaserWriter II NTX in  
Building 223, Room B-118
- 335RM109 - Materials and Components Apple LaserWriter Plus in  
Building 335, Room 109
- 362C356 - Environmental Assessment and Information Sciences  
Apple LaserWriter II NTX in Building 362, Room C-356
- 362F340 - Environmental Assessment and Information Sciences  
Apple LaserWriter II NTX in Building 362, Room F-340
- 372LOWER - Energy Systems Apple LaserWriter Plus in Building 372,  
lower level
- CTDDIV1 - Computing and Telecommunications Apple LaserWriter  
in Building 221, Room A-240
- CTDMIS1 - Computing and Telecommunications Apple LaserWriter II NTX  
in Building 221, Room B-151
- CTDMIS1 - Computing and Telecommunications Apple LaserWriter Plus  
in Building 221, Room D-156
- CTDSY1 - Computing and Telecommunications Apple LaserWriter II NTX  
in Building 221, Room B-224
- CTDUS1 - Computing and Telecommunications Apple LaserWriter NTX  
in Building 221, Room A-117
- CTDUS2 - Computing and Telecommunications Apple LaserWriter II NTX  
in Building 221, E-119





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# ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division

DEPOSITORY

VOLUME 22

NUMBER 2

FEB 26 1991

FEBRUARY 1991

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AT URBANA

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Computer-Based Training Courses

# COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory

Building 221

Argonne, Illinois 60439-4822

FAX: 708-972-5983

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

		Room	Phone	Electronic Mail Address
Division Director	David Weber	A251	2-7155	B22788 AT ANLVM
Computer Protection Program Manager	Jean Troyer	A237	2-7440	B18216 AT ANLVM
Computing and Telecommunications Operations	Larry Amiot	B243	2-5432	B10523 AT ANLVM
Computer Network	Bob McMahon (Acting)	B239	2-7270	B17385 AT ANLVM
Data Communications	Linda Winkler (Acting)	B251	2-7236	B32357 AT ANLVM
Service Engineering	Paul Phillips	D118	2-4343	B36679 AT ANLVM
	Vern Tantillo	C112	2-4181	B06434 AT ANLVM
Computer Operations	Gary Schlesselman	A113	2-5437	B09819 AT ANLVM
Day and Weekend Operation	Bob Bilshausen	A134	2-5421	
Document Distribution Counter		A134		
Evening and Overnight Operation	Mike Monczynski	A134	2-5421	
Tape Librarian	Sandra Vasko	A134	2-7681	B18669 AT ANLVM
Systems Programming	Doug Engert	B231	2-5444	B17783 AT ANLVM
Telephone Services	Allen Winter	B247	2-2764	B07059 AT ANLVM
User Services	Fred Moszur	A121	2-7419	B27564 AT ANLVM
Computer Use Authorizations	Fran Carnaghi	A147	2-5425	B27596 AT ANLVM
Consultants		A139	2-5405	CONSULT AT ANLVM
Documentation Advice		A139	2-5405	CONSULT AT ANLVM
Education and Assistance	Pete Bertoncini (Acting)	E101	2-4827	B15013 AT ANLVM
Management Information Systems	Diane O'Brien	B151	2-7167	B26424 AT ANLVM
Financial Systems	Nick Moore	D239	2-8075	B31048 AT ANLVM
Human Resource Systems	Bob Hischier	B147	2-7272	B22639 AT ANLVM
Information and Production Services	Miriam Bretscher	B139	2-7252	B26187 AT ANLVM
Materials and Plant Systems	Rich Slade	B159	2-7329	B32848 AT ANLVM
Planning, Finance, and Administration	Mike Boxberger	A245	2-5638	B34540 AT ANLVM
Scientific Applications and Research	Charles Mueller	A231	2-7153	B11284 AT ANLVM

The Division operates a Cray X-MP/14 with UNICOS 5.0, a Sun 3/280 gateway, a central VAX cluster (a DEC VAX-11/750, a DEC VAX 8700, and a DEC VAX 8250) with VMS 5.3, an IBM 3084QX9, and three Hewlett-Packard 3000 minicomputers. Software on the IBM computers includes VM/SP CMS Release 5, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E), and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 708-972-5415.

The *Argonne Computing Newsletter* is published monthly by the Computing and Telecommunications Division, Argonne National Laboratory, Argonne, Illinois 60439; edited, prepared, and formatted by April Heiberger with CMS, Waterloo Script, and the Linotype L300P typesetter. This *Newsletter* was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.



## COMPUTING COMMENTS

### **ARGONNE INFORMATION MANAGEMENT SYSTEM AVAILABLE**

The Technical Information Services (TIS) Department has announced the opening of the Argonne Information Management (AIM) System to the Laboratory. AIM offers interactive access to the information databases of TIS.

AIM provides access both to the online catalog of materials held by the TIS libraries and Current Contents Search data files. The AIM Library Online Catalog contains approximately 60,000 book, 500,000 technical report, and 3,500 journal title records. Over a million copy/location records are associated with these title records. All book, journal, and technical report records contain bibliographic information as well as location and availability. The major access points for searching include title, author, keyword, call number, and report number.

The Current Contents Search provides access to the most recent 12 weeks of table of contents information from five Current Contents editions: Agriculture, Biology, and Environmental Sciences; Clinical Medicine; Life Sciences; Physical, Chemical, and Earth Sciences; and Engineering, Technology, and Applied Sciences.

TIS and CTD have installed the AIM System on the central VAX 8700 computer. To access the system from any library terminal, you must have a divisional AIM account. Contact your division office to arrange for a divisional AIM account. To access the system from your office, you need a central VAX 8700 computer account and a workstation/terminal with at least VT100 compatibility. Direct questions about telecommunications or connecting to the VAX 8700 computer to the User Services consultants at extension 2-5405. To learn how to use the AIM System, visit any library location for a demonstration. An *Argonne Information Management System Quick Guide* is available from TIS.

## VOICE MAIL SERVICE BEGINS

In mid-January 1991, CTD installed the new Argonne voice mail service (an Octel Communications Corporation ASPEN--MAXUM system) as a component of the Private Branch Exchange (PBX) system. The new Voice Mail System will be an optional service available by subscription. Voice mail subscribers can check for messages from any telephone and can forward voice messages to other subscribers. Voice mail can provide callers with general announcements and routing options to other telephone extensions. Voice mail also provides telephone users with "telephone answering machine" capabilities.

In response to a survey last fall, Telephone Services will conduct training and information seminars for telephone coordinators and key secretarial personnel of divisions that expressed a need for voice mail. We anticipate three implementation phases: voice mail service, telephone answering, and special user-specific applications. We will send new voice mail users a complete information package that will allow them to get started and to follow the online system tutorial. Telephone Services will also provide a video training tape to each telephone coordinator. Please process all requests for service and additional features through your division's telephone coordinator.

Currently, a user test group of CTD and DOE personnel are performing system operations, feature tests, and application evaluations. This initial testing should be done by mid-February 1991. Telephone Services will begin taking subscriptions for this service after mid-February 1991. For more information, contact your telephone coordinator.

## VM/XA RUNNING UNDER TEST

CTD has begun converting the IBM mainframe operating systems to newer Extended Architecture (XA) versions. The current VM/SP production operating system is now running under a skeleton version of the VM/XA operating system on one-half of the IBM 3084 hardware. CTD will test the components of the new VM/XA production system under this same arrangement. In March 1991, the VM/XA system will replace the VM/SP system.

Before installing the VM/XA test system, CTD tested Management Information Services (MIS) applications, system and Z-disk execs, and some commercial program products during the early morning test periods. On January 21, 1991, CTD installed the production VM/SP system under VM/XA.

CTD plans a more intensive test period before VM/XA replaces VM/SP. Changes will be necessary to the VM/XA control program, commercial software products, and various virtual machines. During February and March 1991, CTD is soliciting user participation in testing applications and new versions of software products in a new test CMS system that will soon be available under VM/XA. Limited amounts of free test time will be available during normal business hours. If you wish to participate in the upcoming test, please contact the User Services consultants (Building 221, Room A-139, extension 2-5405).

#### **LIMITED SUN UNIX SERVICE AVAILABLE**

CTD will provide access to a Sun 4/490 Unix system for users with asynchronous terminals who use the Cray X-MP/14 computer. The Sun Unix system identified as `achilles.ctd.anl.gov` uses the network file system to access Cray files. It enables users to edit and manage files interactively for batch jobs submitted to the Cray. This approach offers a common environment and convenient interactive editing for Cray files, thereby keeping Cray CPU resources available primarily for intensive batch computations. Users with Sun workstations or whose divisions have Sun or other Unix computers can use the Cray in the same manner.

Although there is limited disk space on the Sun server, additional disk space is available with the Cray /n2 network file system. The Cray /n2 file system is available for convenient file sharing but does not provide adequate security for storing sensitive information. CTD charges the same rate for data on all central computer systems (\$0.15 per megabyte day).

To enroll for Sun Unix service, contact Account Services (Building 221, Room A-147, extension 2-5425). To access the Sun by telephone, call extension 2-5588 and enter:

`telnet achilles.ctd.anl.gov`

User Services has begun to offer introductory Unix classes (see the *Newsletter* for the dates and times). For assistance with Sun Unix service, contact the User Services consultants at extension 2-5405.

#### **MATHEMATICS AND COMPUTER SCIENCE PARALLEL COMPUTING CLASS**

The Mathematics and Computer Science Division is offering a three-day class (9:00 a.m. to 4:30 p.m., on Wednesday, Thursday, and Friday, March 6-8, 1991) on how to write programs for the parallel computer systems in the Argonne Advanced Computing Research Facility (ACRF).

The class will cover the following topics: (1) parallelizing compilers, (2) using the VecPar interactive parallelization tool, (3) using the Argonne Monitor package, (4) programming the Butterfly TC2000, (5) programming the Distributed Array Processor (DAP), and (6) programming the Connection Machine-2. The class will include hands-on experience in writing and running programs on each machine. Participants will become familiar with the ACRF environment. Some knowledge of Unix and Fortran is necessary. To become familiar with Unix, refer to *A Practical Guide to UNIX System V* (0-8053-8915-6), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

To register for the class, contact Teri Huml at extension 2-7163 or at electronic mail address `huml@mcs.anl.gov`. There is a \$30.00 charge per person for universities, federal laboratories, and other government organizations and a \$200 charge for commercial organizations.

#### **CRAY NEWS**

##### **CA-DISSPLA 11.0 AVAILABLE FOR TESTING IN CRAY UNICOS**

CA-Disspla Version 11.0 from Computer Associates (CA) is now available for testing in Cray UNICOS. Features of CA-Disspla 11.0 include:



- Object rendering: you can now request complex geometric objects in wire frame as well as fully shaded models.
- Processing of raster images: Disspla can read any digitally recorded raster image stored as a collection of pixels.
- Two-dimensional color shaded contours.
- Three-dimensional and four-dimensional shaded surfaces.
- Enhanced control of contour levels.
- Greek and Hebrew shaded fonts.
- Run-time device selection of dynamically loaded device drivers.

To use Disspla 11.0 on the Cray, use the \$DISLIB11 shell variable in place of the \$DISLIB shell variable when linking your programs. For explicit usage of CA-Disspla 11.0 in Cray UNICOS, refer to the addendum to the *ANL Supplement to the CA-Disspla User's Manual* (ANL/TM 467). ANL/TM 467, its addendum, and the *CA-Disspla User Manual: Release 11.0*, Volumes 1 and 2 (RG 99 DS 1101S), are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies).

CTD is testing the X Window device driver for Disspla 11.0 in UNICOS that allows you to display your Cray-generated plots on remote X Window displays. We will provide instructions and advice for usage in a future *Newsletter*.

## GRAPHICS NEWS

### NATIONAL COMPUTER GRAPHICS ASSOCIATION EXPOSITION IN CHICAGO APRIL 22-25, 1991

The 1991 National Computer Graphics Association (NCGA '91) Conference and Exposition will be held at McCormick Place in Chicago on April 22 through 25, 1991. This Conference will have 80 sessions (including graphics standards, future trends in

computer graphics, analyses of computer graphics problems, hands-on training courses, and hardware and software "shoot-outs," where products are compared in real-time against each other).

Exposition attendees will be able to see the latest hardware and software products from over 200 of the leading firms in the computer graphics industry.

A limited number of free exposition passes are available. Contact Mike Thommes at extension 2-5461 or at electronic mail address B14908@anlvm.ctd.anl.gov.

## MANAGEMENT INFORMATION SYSTEMS

### INTEGRATED FINANCIAL SYSTEM UPDATE

The Integrated Financial System (IFS) Project Team has signed a contract with Dun & Bradstreet Software (DBS), the IFS vendor, to provide consulting services and education classes to the Laboratory over the next three years. ANL has contracted for 40 days of consulting and 125 days of education credits. In FY1991, we plan to use DBS technical services to assist with the implementation of Brightview, Expertlink, Ad Hoc Query, and the new release of Information Expert Reporting. We also plan to use DBS management consulting services in the implementation of Accounts Payable and the specification of the new Budget system.

Human Resources Department personnel will be the first to use the education credits. They will attend Information Expert (IE) reporting tools classes at the DBS training area in Oak Brook. The Human Resources Systems Group of CTD's Management Information Systems (MIS) Section has defined the Laboratory's payroll and personnel systems to IE. This is the first IE use at Argonne for accessing applications other than those acquired from DBS as part of the IFS project. We plan to allow Laboratory users to use the same tools (IE reporting, Ad Hoc query, and Expertlink) to access other administrative data on the IBM mainframe computer. As more data is made available to these tools, users will realize the benefits of one of the most important components of the Administrative Computing Strategy: to provide a single set of tools

to access all data, regardless of the system or application. When the installation of the new versions of these tools is complete, we will make arrangements for interested users to attend the appropriate classes at DBS.

Progress on all phases of the IFS project will be reported at the Financial Applications Committee to Effect Telesis (FACET) meetings held on the second Wednesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

## MVS NEWS

### **BMDP 90 STATISTICAL PACKAGE GOES PRODUCTION ON IBM MVS SYSTEM**

On Monday, February 11, 1991, the Biomedical Computer Programs (BMDP) 1990 version statistical package from BMDP Statistical Software, Inc. will go production on the IBM MVS operating system. MVS users can access the 1990 version of BMDP by using the following JCL:

```
//stepname EXEC BIMED,PROG=programname
```

where "programname" is the name of the BMDP program to be run. MVS users who want to execute the 1990 version of BMDP with their Fortran 77 programs can enter:

```
//stepname EXEC BIMEDT,PROG=programname
```

where "programname" is the name of the BMDP program to be run.

The BMDP 1990 software includes the following new enhancements:

- Eight new transformation functions:

- Gaussian cumulative distribution
- t cumulative distribution
- Chi-square cumulative distribution
- F cumulative distribution
- Inverse Gaussian cumulative distribution
- Inverse Chi-square cumulative distribution
- Inverse t cumulative distribution
- Inverse F cumulative distribution

- Two new programs: Maximum Likelihood Estimation (LE) and Polychotomous Logistic Regression (PR).

LE estimates the parameters that maximize the likelihood function by using the iterative Newton-Raphson algorithm.

PR computes the maximum likelihood estimates of parameters of logistic models for multinomial data.

- A major revision to Correspondence Analysis (CA).

CA now performs Multiple Correspondence Analysis. Multiple Correspondence Analysis is an extension of Simple Correspondence Analysis to the case of three or more categorical variables.

BMDP and new features in the 1990 version are documented in the *BMDP Statistical Software Manual* (Volumes 1 and 2), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). Direct any questions to the User Services consultants at extension 2-5405.

### **MVS SAS USERS CAN ACCESS BMDP PROCEDURES**

MVS SAS programs can use the PROC BMDP statement to use any Biomedical Computer Programs (BMDP) program to analyze data residing in a SAS dataset. The *SAS User's Guide: Basics* (0-917382-65-X) describes the use of the BMDP procedure. To see some of the capabilities of the latest BMDP software, see "BMDP 90 Statistical Package Goes Production on IBM MVS System" in this *Newsletter*. To use the BMDP software from SAS, you must invoke the SASBMDP cataloged procedure instead of the SAS cataloged procedure. Direct any questions to the User Services consultants at extension 2-5405.



## **EXPIRATION OF THE SAS INSTITUTE ETS SOFTWARE LICENSE**

The contract for the Statistical Analysis System (SAS) Econometric Time Series (ETS) software on the IBM MVS system has expired without plans to renew it. Consequently, the SAS/ETS software on the MVS operating system is no longer available. The base and statistical SAS procedures and SAS/Graph will continue to be available. If you have a requirement for SAS/ETS, please contact the User Services Manager at extension 2-7419.

## **PERSONAL COMPUTING AND WORKSTATIONS**

### **MACINTOSH VIRUS ABATEMENT AVAILABLE**

Virus abatement software for the Apple Macintosh community is available through the Laboratory-wide AppleTalk network. This network consists of 26 AppleTalk zones connected by the Laboratory-wide Ethernet network. There are two AppleShare servers with up-to-date virus abatement software:

Zone: Public AlisaTalk  
Server: CTDVAXServer  
Volume: Public Volume  
Folder: Abatement Software

Zone: MSD 223 Upstairs  
Server: MSD 223 AS 1  
Volume: MSD Shared Volume  
Folder: Virus Tools

To access the Apple Macintosh virus tools, you need an Apple Macintosh connected to the Laboratory-wide AppleTalk network and AppleShare software installed on your machine. To connect to the volumes above, use the Chooser and select the AppleShare icon. Go to the proper server and volume. Log on to the server as a guest and mount the volume on your desktop. The server will appear as if it is another disk driver on the desktop. Copy the software you need to your own disk and then disconnect from the server by dragging the server icon into the trash can icon.

GateKeeper Aid, a virus protection program, kills the WDEF virus on contact and should be put

in your system folder. Note that GateKeeper Aid can cause difficulties with Microsoft Word on the Apple Macintosh IIx.

To check your disk for difficulties, run Disinfectant 2.4, the latest software for detecting and killing Apple Macintosh viruses. The protection option of Disinfectant 2.4 will install an init file in the system folder. This init file will warn you of future virus attacks. You can then remove the virus by running the Disinfectant 2.4 application. This application should be all the virus protection your Apple Macintosh needs; however, new viruses are constantly being created. Therefore, check the AppleShare servers every two to three months for new upgrades.

### **APPLETALK CONVENTIONS AT ANL**

Currently, ANL has over 400 machines on its Laboratory-wide AppleTalk network. These machines are connected either directly to the Laboratory-wide Ethernet network or through Ethernet/LocalTalk gateways. The Argonne AppleTalk Network Manager's Working Group met in mid-January 1991 to discuss current Laboratory-wide AppleTalk issues and agreed to the following conventions:

- Chooser Names: Apple Macintosh users can choose their own descriptive machine name, which is the chooser name. The old recommendation was to enter badge, building, and room information in the name. The new recommendation is to use the first name and last name of the user.
- Printer Names: Printers should have descriptive names to assist users in selecting appropriate printers.
- AppleTalk Phase II: AppleTalk Phase II is a new, robust networking protocol developed for large AppleTalk networks like Argonne's. Currently, we provide both the old AppleTalk Phase I and Phase II through a protocol translator. As of February 5, 1991, all new AppleTalk equipment must use Phase II.
- Seeding: One feature of AppleTalk Phase II is the ability to seed networking information. Central nodes can maintain lists of zone names and numbers and can seed other devices with this

information. The Computing and Telecommunications Division (CTD) and the Chemical Technology Division (CMT) will maintain the central lists. Whenever possible, all other AppleTalk equipment should turn on the seeding feature.

- **Zone Registration:** Because we will use central administration of AppleTalk zone information, new AppleTalk zones must be registered with CTD. The convention for zone names is Division(space)Descriptor (for example, CMT 205). Network managers desiring a new zone should send a request through E-mail to [appletalk@anl.gov](mailto:appletalk@anl.gov) or call the CTD Computer Network Section at extension 2-4360 to request a network number and zone name.
- **FastPath-4 PROM Upgrade:** CMT has discovered a difficulty with the existing FastPath Ethernet/AppleTalk routers. Because these routers pad AppleTalk packets, they are unable to communicate with Digital Equipment Corporation's high-speed Ethernet DEBNI interfaces. CTD's VAX 8700 and CMT's VAX 6220 have these interfaces. Any FastPath router requiring communication with these two machines will have to upgrade its PROMs to correct the difficulty. Information about this upgrade is available by sending E-mail to [appletalk@anl.gov](mailto:appletalk@anl.gov) or by calling the CTD Computer Network Section at extension 2-4360.

## TELECOMMUNICATIONS NEWS

### TCP/IP TERMINAL SERVER AVAILABLE

CTD has added a Cisco Transmission Control Protocol/Internet Protocol (TCP/IP) terminal server to the Laboratory-wide network to allow dial-in access for asynchronous terminal to TCP/IP host computers (for example, the Cray X-MP/14 computer and other Unix systems). The terminal server extension is 2-5588. Currently, there are 16 ports available on this server. To prevent users from "camping out" on scarce ports, CTD has imposed a 30-minute idle time-out on the server.

### ARGONNE PARTICIPATES IN CICNET

CTD has established Argonne's membership in the Consortium for Institutional Cooperation Network (CICNet). Argonne is connected to CICNet via four T1 communication links. CICNet is a regional T1-based regional network interconnecting member institutions (Argonne, the University of Chicago, the University of Illinois at Chicago, Northwestern University, the University of Wisconsin, the University of Minnesota, the University of Iowa, the University of Illinois at Urbana-Champaign, Indiana University, Ohio State University, the University of Michigan, Michigan State University, Ameritech, and the University of Notre Dame). CICNet provides connectivity (Transmission Control Protocol/Internet Protocol [TCP/IP] and Digital Equipment Corporation network [DECnet] protocols) among member institutions and connectivity (TCP/IP protocol) to the National Science Foundation network (NSFnet). In addition to network connectivity, CICNet members participate in various working groups and affinity groups focusing on special interest areas. As a member institution of CICNet, Argonne has expanded access to research and educational resources and a greater degree of input on issues of importance, such as the emerging National Research and Educational Network.

Some members of the CTD staff also participate as members of CICNet organizations. Dave Weber represents Argonne on the CICNet Executive Board. Larry Amiot represents Argonne on the CICNet Technical Board. Linda Winkler represents Argonne on the CICNet Network Planning Subcommittee and the Open Systems Interconnection (OSI) Integration Working Group.

### DROPPED CONNECTIONS TO CTD HOSTS UNDER INVESTIGATION

Recently, users accessing CTD computing resources via the Laboratory-wide Private Branch Exchange (PBX) have had difficulty with dropped connections. The interruptions have affected the Digital Equipment Corporation network (DECnet), the Local Area Transport (LAT), and Xyplex users. CTD is investigating the difficulties and will reconfigure access to Laboratory-wide resources located on the CTD backbone Ethernet.



## NEW ADDITIONS TO BITNET UNIVERSITY NETWORK

The BITnet University Network enhances collaborative efforts between Argonne scientists and scientists at universities and other organizations. You can use electronic mail through BITnet to share programs, data, and other information with other BITnet users.

Currently, the BITnet network comprises over 3,300 computers at over 1,190 sites. Since the last *Newsletter* article in December 1990, the following universities and organizations have joined BITnet:

Anne Arundel Community College--Arnold,  
Michigan  
Autonomous Refinancement Fund--Paris  
Central School of Planning and Statistics--Warsaw  
CYFRONET--Krakow  
Ecuadorian Private Foundation--Guayaquil  
Hobart and William Smith Colleges  
Institute of Spatial Physics--Orsay, France  
Loyola Marymount University  
Maria Curie-Sklodowska University--Lublin, Poland  
Nagoya Women's University  
National University of Colombia--Bogota  
Northern Michigan University  
Pembroke State University--North Carolina  
Prague Institute of Computer Science  
Prague School of Economics  
Rudjer Boskovic Institute--Zagreb  
Saint John's University--Collegeville, Minnesota  
School of Medicine--Springfield, Illinois  
Senshu University--Japan  
Thomas Jefferson Medical College--Philadelphia  
University of Brasilia  
University of Nevada--Reno

For a complete list of organizations in the BITnet network and their nodenames, enter (in CMS, the VAX 8700, or MVS Wylbur):

**HELP BITNET NODES**

## VAX/VMS NEWS

### ANSYS 4.4A+ BECOMES PRODUCTION

In December 1990, CTD installed ANSYS 4.4A+ for user testing (see "ANSYS 4.4A+ Installed for User Testing" in the December 1990 *Newsletter*). On Monday, February 18, 1991, ANSYS 4.4A+ will become the default version of ANSYS. Since it became available, no one has reported any difficulties. During December 1991, users of the new version logged nearly 30 hours of processor time versus 15 hours with the old version.

To access ANSYS 4.4A+, enter:

```
$ SETUP ANSYS /V=44A MAX=maximum-wavefront-value
```

where "maximum-wavefront-value" is the value that your analysis problem requires for solution. The value of this parameter may be either 580 or 2000. After February 18, 1991, the "/V=44A" option will not be necessary. If your work requires the solution of finite element problems with a maximum wavefront larger than 2,000, notify the User Services consultants at extension 2-5405; CTD will make a large version available to you.

ANSYS *News* (available to ANSYS users at no cost from Swanson Analysis Systems, Inc.) is a quarterly newsletter that contains technical articles, usage tips, and other information related to the product. The latest issue (Fourth Issue, 1990) describes the improved performance of ANSYS 4.4A+ versus ANSYS 4.4 in the reordering of algorithms. To be placed on the ANSYS *News* mailing list, write to:

Attn: Mail List  
Swanson Analysis Systems, Inc.  
Johnson Road, P. O. Box 65  
Houston, PA 15342-0065

### IMSL VERSION 1.1 AVAILABLE FOR USER TESTING

Version 1.1 of the IMSL mathematical, statistical, and special function libraries is now available on the Argonne central VAX 8700 computer for user testing. If there are no difficulties, CTD will make Version 1.1 the production (default) IMSL library on Monday, April 15, 1991. IMSL Version 1.1 replaces subroutines from Version 1.0 that have certain errors corrected; there are *no new capabilities*. With

this release, we have also made the G-floating library available.

To use the IMSL V1.1 libraries, enter:

```
$ SETUP IMSL /V=NEW
```

Then link either the D\_floating (IMSL) or G\_floating (IMSLG) libraries as follows:

```
$ LINK program-names,IMSL[G]/OPT
```

where "program-names" represents the list of programs (separated by commas) that you wish to link with the library and the brackets enclose optional fields. The /OPT field must follow the library name. After April 15, 1991, you will not need to enter the SETUP command to obtain the new version. To display information about linking your programs with the IMSL library, use the HELP command. To use the online IMSL vendor documentation, IMSL\_IDF, enter

```
$ IMSL_IDF
```

and follow the prompts.

## BITS & BYTES

### RECENTLY UPDATED AND PUBLISHED DOCUMENTS

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy):

#### Computing and Telecommunications Documents

*A Plan for Administrative Computing at ANL: FY1991 through FY1993* (ANL/TM 483) identifies the components of administrative computing at ANL, provides guidelines for development of new or enhanced systems, and outlines the procedures by which management determines the structure and organization of administrative computing systems. The *Plan* proceeds from the premise that administrative information is a Laboratory asset; therefore, the

Laboratory must know the quality, characteristics, availability, costs, and location of information as it would any other asset. The *Plan* incorporates detailed summaries of specific projects proposed for the three-year span and broader recommendations for the course of administrative computing development over a ten-year span. The document includes a listing of all known administrative computing systems in use onsite. Charts of expenditures for both user-funded and Laboratory-funded systems provide a complete statement of the Laboratory's financial commitment to administrative computing.

A December 1990 addendum to the *Guide to Telecommunications at ANL* (ANL/TM 422) updates and corrects as new features have become available and others are no longer available or no longer recommended.

The new *Argonne National Laboratory Computer Networks* brochure (June 1990) describes the computer networks available at Argonne.

The *Argonne National Laboratory Computing and Telecommunications Division* brochure (October 1990) provides an overview of the computing services available at Argonne. This brochure supersedes the May 1990 brochure.

The new *Central IBM Systems at Argonne National Laboratory* brochure (December 1990) describes the central IBM systems available at Argonne.

The *Central VAX Computing at Argonne National Laboratory* brochure (October 1990) describes the central VAX cluster at Argonne. This brochure supersedes the May 1990 brochure.

The *Cray Computing at Argonne National Laboratory* brochure (October 1990) describes the Cray UNICOS computing system environment at Argonne. This brochure supersedes the May 1990 brochure.

The *Reference Card for Using the Computer Callback Service* brochure (January 1991) describes the Computer Callback Service that allows offsite users in Illinois (with area codes of 312, 708, or 815) to access onsite computers without incurring large personal costs for telephone charges. Users who want to use Callback must make sure that their hardware and software configuration and telephone service are compatible with Callback requirements.



Before trying to use Callback, users should read this *Reference Card* for full instructions. This brochure supersedes the June 1987 brochure.

### Computer Associates Documents

The *CA-Data Connection User Manual Release 1.0* (RG99DC1001S) describes THE DATA CONNECTION, an integrated portfolio of tools designed to solve data access problems. As the name suggests, THE DATA CONNECTION builds connecting links between Tellagraf and the many sources of data used to produce meaningful, up-to-date graphical presentations. THE DATA CONNECTION consists of four tools, each of which solves a particular set of data acquisition, data analysis, or data management problems: FILE CONNECTION, REPORT CONNECTION, EXTERNAL PROGRAM CONNECTION, and DECISION SUPPORT CONNECTION. The reader should be familiar with the Tellagraf product, including basic Tellagraf commands and files. This manual supersedes the *Data Connection User's Guide*.

### Digital Documents

*Guide to Using VMS Command Procedures* (AA-LA11A-TE) presents key concepts and techniques for developing command procedures with the VAX/VMS Digital Command Language (DCL). Many examples, including examples of complete command procedures, demonstrate applications of the concepts and techniques discussed. The examples include elementary, advanced, and complex command procedures. This manual supersedes *Guide to Using DCL and Command Procedures on VAX/VMS* (AA-Y501A-TE).

The *VAX EDT Reference Manual* (AA-LA16A-TE) serves as a reference source for the EDT interactive text editor. It is for all users of EDT. This manual supersedes the *VAX EDT Reference Manual* (AA-Z300A-TE).

### SAS Documents

The *SAS Companion for the MVS Environment, Version 6, First Edition* (1-55544-398-2) provides both tutorial and reference information about the SAS System under MVS. Parts 1 and 2 show you how to perform common tasks and explain how you can accomplish these tasks by using the SAS System under MVS. Parts 3, 4, and 5 provide complete

descriptions of all the features of the SAS System that have host-specific behavior but do not teach you how to use the software. This manual provides host-specific details to supplement the information in *SAS Language and Procedures: Usage, Version 6, First Edition* (1-55544-371-0); *SAS Language: Reference, Version 6, First Edition* (1-55544-381-8); and the *SAS Procedures Guide, Version 6, Third Edition* (1-55544-378-8).

The *SAS/ETS User's Guide, Version 6, First Edition* (1-55544-325-7) documents the SAS/ETS software, including (1) time series extracting, data management, and plotting; (2) forecasting and time series extraction; (3) modeling and econometrics; and (4) financial reporting. The SAS/ETS procedures require prior knowledge of the SAS system and elementary statistics. This manual supersedes the *SAS/ETS User's Guide* (0-917382-62-5).

### University of Chicago Documents

The *University of Chicago Agreements with Personal Computer Vendors* (January 21, 1991) contains the latest lists of personal desktop computer discounts available through the University of Chicago to Argonne employees for both personal and Laboratory purchases. This revised price list supersedes the price list of December 6, 1990.

## USERS GROUP HIGHLIGHTS

### MINUTES OF COMPUTER USERS GROUP MEETING

There was no Computer Users Group meeting in January 1991.

### MINUTES OF MACINTOSH USERS GROUP MEETING HELD JANUARY 9, 1991

Bob Kampwirth (Materials Science) opened the meeting at 11:00 a.m.

Brenda Hancock (a trainer from Apple Computer) demonstrated the new version of HyperCard, HyperCard 2.0, from Claris. Laura Ege (local marketing support representative from Apple Computer, 708/518-2658), was also there. The version of HyperCard 2.0 supplied with new Apple Macintosh

computers works with existing HyperCard stacks. To get a full version of HyperCard (including manuals), call Claris at 1-800-628-2100, extension 92. The cost is \$49 plus \$3 shipping. However, even with the limited version of HyperCard that comes with the new Apple Macintosh, one can get to the scripting level by using Command-M. A Developers Toolkit for HyperCard will be available soon.

To use HyperCard 2.0, one needs System 6.0.5 or greater and one megabyte of random-access memory (RAM). One can use it to open stacks created by older versions of HyperCard. However, be careful! Once you have converted a HyperCard stack to HyperCard 2.0, you cannot get it back as the older version. If you think that you will ever need to use your HyperCard stack with an older version of HyperCard, save a copy of the older version of the stack and put it in a safe place.

The major features in HyperCard 2.0 are:

1. Window size that can vary from 64-by-64 pixels to 1280-by-1280 pixels, the size of a two-page monitor. However, all the cards in a stack must be the same size.
2. Several stacks open at the same time. The number of open stacks is limited only by the amount of RAM available.
3. Enhanced text capabilities, including multiple font styles within a text field (but no superscripts or subscripts), "hot" text (so that the word triggers an action sequence like a button does), and text manipulation by using HyperCard scripts.
4. Improved report generation and printing (including the ability to print only specified cards or specified fields).
5. Improved HyperTalk script editor (including a compiler instead of an interpreter that doubles the speed of HyperCard, menus that function within the script editor, horizontal scrolling, search and replace operations, and the ability to add comments to HyperTalk scripts).
6. Custom menus (including adding new menus to the menu bar, adding new items to menus, and disabling menus or menu items).
7. An icon editor that can create or modify icons (including editing at the pixel level). One can

bring in a color or gray scale, but only by using special windows.

After the Apple demonstration, Rodney East (Materials Science) showed how he is using HyperCard 2.0 to keep track of usage at the four Quick-Mail centers for which he is responsible. He found HyperCard 2.0 to be easier and faster for developing stacks than the previous versions of HyperCard. It is easier to debug because one can put checkpoints in the script, see the variables that are defined, and step through the execution of the code.

To learn how to create HyperCard stacks will take a fair amount of time, even though HyperTalk is an easy English-style programming language. To learn how to modify and personalize stacks that others have created will take some time, but probably less than a week. To learn how to use stacks that others have created is easy and should take five minutes to an hour.

System 6.0.5 can cause an Apple Macintosh IIcx to crash. People who have such difficulties should see Rodney East, who has a new set of disks for this system. To prevent system crashes, use the installer to put a new system on your hard disk and to allot more space to the finder. Space allocation of 200K to 300K is recommended for system 6.0.5.

Rodney East announced that an open-ended class on object-oriented programming on the Apple Macintosh will meet each Wednesday beginning on January 30, 1991, at 7:00 p.m. in Building 221, Room A-261. Persons interested in attending will need Lightspeed Pascal 3.01 and an Apple Macintosh with a hard disk and 2.5 megabytes of RAM.

The February 1991 meeting will feature the use of graphics and animation on the Apple Macintosh to prepare a presentation-quality videotape. The March 1991 meeting will include a presentation of LabView 2.0 from National Instruments. The April 1991 meeting will explore ways to exchange data and text between the Apple Macintosh and IBM personal computers.

The Apple Macintosh Users Group normally meets the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee Wagar (Graphic Arts), Jim Lewellen (Computing and Telecommunications), or

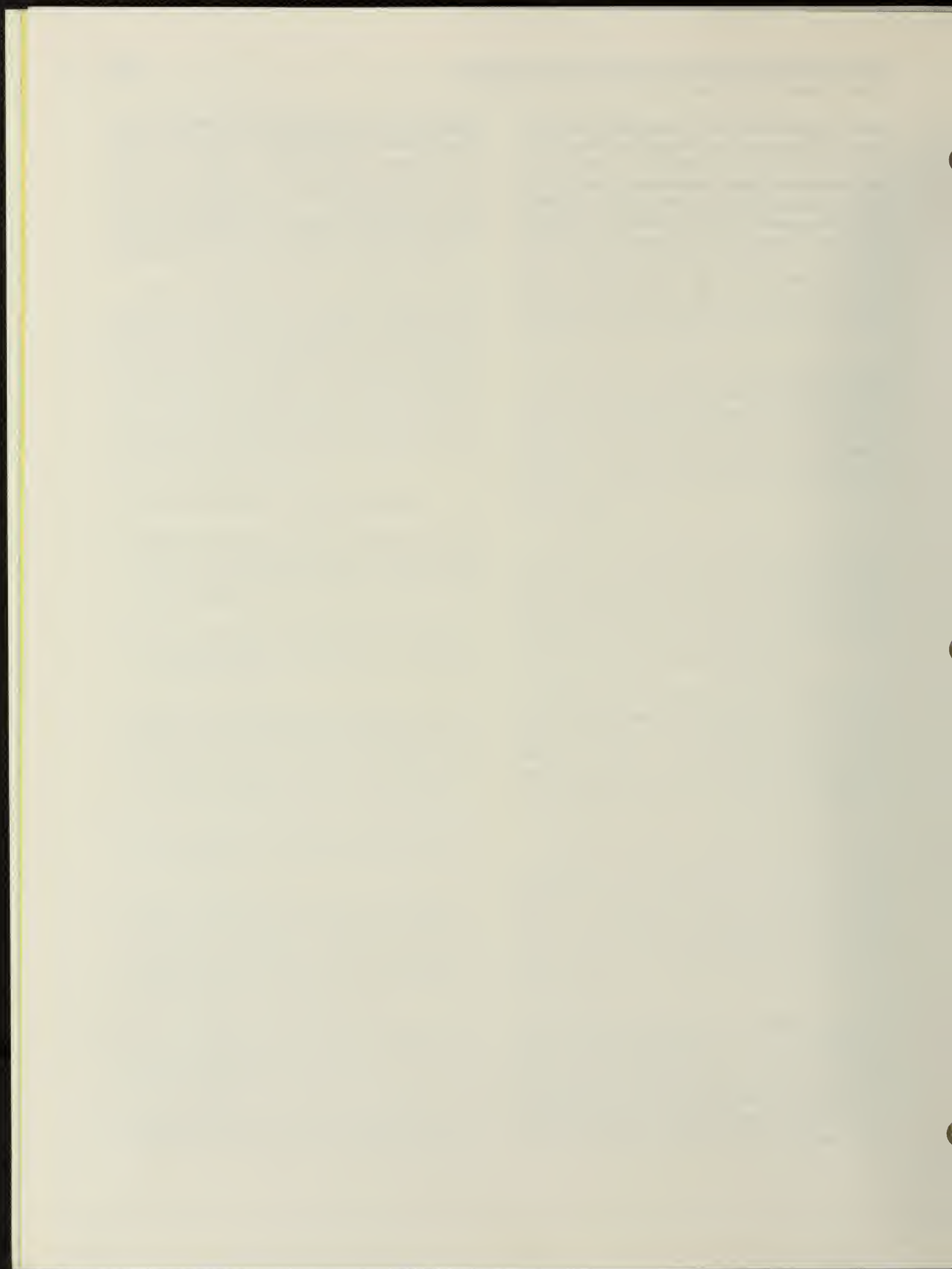


Ralph Leonard (Chemical Technology) for further meeting information. Lee Wagar sends the meeting announcements with QuickMail or E-mail, when possible, and with paper to those who have no electronic mail capabilities. If you have an electronic mail address and are not receiving an electronic

meeting announcement, contact Lee Wagar at extension 2-5603 or via QuickMail.

The meeting adjourned at 12:15 p.m.

Ralph Leonard, Macintosh Users Group Secretary





# WORKLOAD STATISTICS (NOVEMBER 30 THROUGH DECEMBER 20, 1990)

## NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	END OF MONTH	ACTIVE DURING MONTH
CMS	1,229	1,236	428
Wylbur	1,651	1,672	325
MVS TSO	57	57	15
CICS	2,182	2,197	125
MVS Batch	2,182	2,197	636
VAX/VMS	620	644	327
Cray	335	340	130
All Systems	2,182	2,197	968

## INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				SESSION TIME (HRS)	CPU TIME (HRS)
	PRIME	NIGHT	WEEKEND	TOTAL		
<b>INTERACTIVE</b>						
CMS	8,521	1,759	1,238	11,518	29,487.3	73.14
Wylbur	4,827	171	226	5,224	5,849.8	4.56
MVS TSO	253	3	0	256	283.9	0.82
CICS	n.a.	n.a.	n.a.	n.a.	n.a.	2.74
VAX/VMS	11,079	1,198	1,287	13,564	14,008.5	92.02
Cray	1,368	127	226	1,721	1,226.5	20.64
<b>IBM BATCH</b>						
Class U	6,305	1,293	719	8,317	n.a.	15.08
Class W	13,128	2,202	761	16,091	n.a.	85.31
Class X	36	468	17	521	n.a.	23.70
Class Y	0	4	59	63	n.a.	10.97
Nonmain	11,527	1,307	771	13,605	n.a.	0.00
Total	30,996	5,274	2,327	38,597	n.a.	135.06
<b>CRAY BATCH</b>						
u	1,368	127	226	1,721	n.a.	22.97
w	2,235	127	159	2,521	n.a.	68.38
x	380	144	86	610	n.a.	88.50
y	2,440	636	727	3,803	n.a.	168.54
Total	6,423	1,034	1,198	8,655	n.a.	348.39
<b>VMS BATCH</b>						
W BATCH	606	311	107	1,024	n.a.	70.43
X BATCH	25	62	14	101	n.a.	92.85
Y BATCH	4	14	64	82	n.a.	33.78
Total	635	387	185	1,207	n.a.	197.06

## INPUT/OUTPUT

Lines Printed	38,635,577
Local	38,578,742
Remote	28,388,453
Fiche	24,466
Cards Punched-Local Only	4,552
Tape Mounts	3,398
Microfiche Developed	606,343
Microfiche Frames Developed	

## GRAPHICS

	# OF JOBS	# OF FRAMES
CalComp Jobs	25	n.a.
Matrix 35mm Color	13	35
Matrix-8 x 10	3	3
Matrix-Negative	0	0
FR80 Film Plots		
35mm Black/White/Unsprocketed	0	0
35mm Black/White/Sprocketed	0	0
35mm Color	0	0
16mm Black/White/Sprocketed	0	0
16mm Color	0	0

## DATA MANAGEMENT

Tapes Stored	24,351
New Tapes Saved	138
Tapes Released	551
Datasets Exported to Tape	1,870
Datasets Imported from Tape	317

\* n.a. = not applicable

AVAILABILITY STATISTICS, BY MACHINE (NOVEMBER 30 THROUGH DECEMBER 20, 1990)

	Monthly Totals	Hardware	Scheduled Software	Other	Hardware	Unscheduled Software	Other
CMS							
All Shifts							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
NYLBUR							
All Shifts							
Interruptions	4.00	0.00	4.00	0.00	0.00	0.00	0.00
Hrs Unavailable	3.36	0.00	3.36	0.00	0.00	0.00	0.00
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
NVS TSO							
All Shifts							
Interruptions	4.00	0.00	4.00	0.00	0.00	0.00	0.00
Hrs Unavailable	3.36	0.00	3.36	0.00	0.00	0.00	0.00
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
JES3							
All Shifts							
Interruptions	4.00	0.00	4.00	0.00	0.00	0.00	0.00
Hrs Unavailable	3.16	0.00	3.16	0.00	0.00	0.00	0.00
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
CICS							
All Shifts							
Interruptions	1.00	0.00	0.00	0.00	0.00	1.00	0.00
Hrs Unavailable	0.06	0.00	0.00	0.00	0.00	0.06	0.00
MTF/Unscheduled	503.93					503.93	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	1.00	0.00	0.00	0.00	0.00	1.00	0.00
Hrs Unavailable	0.06	0.00	0.00	0.00	0.00	0.06	0.00
MTF/Unscheduled	179.93					179.93	
VAX/VMS (VAX 8700)							
All Shifts							
Interruptions	3.00	2.00	1.00	0.00	0.00	0.00	0.00
Hrs Unavailable	5.20	3.70	1.50	0.00	0.00	0.00	0.00
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	2.03	2.03	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
CRAY							
All Shifts							
Interruptions	4.00	3.00	1.00	0.00	0.00	0.00	0.00
Hrs Unavailable	10.45	10.11	0.33	0.00	0.00	0.00	0.00
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							



COMPUTING CENTER USE IN DOLLARS BY COST CENTER (NOVEMBER 30 THROUGH DECEMBER 20, 1990)

CC	CENAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
ADVANCED PHOTON SOURCE							
130	ADVANCED PHOTON SOURCE DIV	\$187	\$217	\$0	\$350	\$102	\$855
272	ADVANCED PHOTON SOURCE	\$124	\$0	\$0	\$60	\$48	\$233
340	APS DIVISION MANAGEMENT	\$20	\$0	\$0	\$0	\$33	\$52
341	APS ACCELERATOR PHYSICS	\$173	\$1,381	\$307	\$191	\$97	\$2,149
342	APS DIAGNOSTICS	\$0	\$11	\$0	\$0	\$0	\$11
343	APS LINAC	\$0	\$339	\$0	\$19	\$19	\$377
344	APS RF	\$2	\$0	\$0	\$0	\$0	\$2
345	APS VACUUM	\$4	\$2,269	\$0	\$23	\$-366	\$1,931
347	APS CONTROLS	\$33	\$1	\$0	\$0	\$4	\$39
348	APS MAGNETS	\$45	\$1	\$0	\$0	\$47	\$92
349	APS POWER SUPPLIES	\$21	\$0	\$0	\$0	\$0	\$21
350	APS DIVISION MANAGEMENT	\$14	\$0	\$0	\$0	\$8	\$22
351	APS INSERTION DEVICES	\$34	\$217	\$0	\$34	\$101	\$385
352	APS BEAM LINE FRONT ENDS	\$12	\$2,056	\$0	\$79	\$74	\$2,381
353	APS BEAM LINE INSTRUMENTATION	\$11	\$57	\$0	\$3	\$40	\$110
360	APS CONVENTIONAL FACILITIES	\$5	\$0	\$0	\$1	\$0	\$6
361	APS PROJECT DIRECTION	\$22	\$0	\$0	\$0	\$126	\$148
362	APS MANAGEMENT GENERAL	\$15	\$0	\$0	\$0	\$19	\$34
SUBTOTAL		\$881	\$6,548	\$307	\$760	\$307	\$8,803
ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH							
110	BIO & MED RES DIV	\$1,052	\$582	\$65	\$1,081	\$1,082	\$3,861
125	TECHNOLOGY TRANSFER CENTER	\$68	\$5	\$0	\$9	\$109	\$191
149	ENVIRONMENTAL RESEARCH DIV	\$4,266	\$133	\$1,288	\$1,161	\$695	\$7,543
155	ENERGY SYSTEMS DIVISION	\$4,918	\$2,496	\$26,738	\$2,485	\$1,098	\$37,735
165	ENV ASSESS & INFO SCI DIV	\$1,970	\$6,287	\$56,103	\$1,074	\$2,997	\$68,432
174	ENER/ENV/BIO PROG DIR	\$8	\$0	\$0	\$0	\$100	\$108
246	ES-NAT'L ENERGY SOFTWARE CTR	\$101	\$0	\$0	\$747	\$427	\$1,275
274	ENER/ENV/BIO RES PROG ADM	\$72	\$0	\$0	\$1	\$204	\$276
SUBTOTAL		\$12,455	\$9,504	\$84,194	\$6,557	\$6,713	\$119,422
ENGINEERING RESEARCH							
102	EBR-II PROJECT-ANL WEST	\$1,407	\$10	\$5	\$1,174	\$104	\$2,700
104	FUELS AND PROCESSES	\$977	\$95	\$2	\$191	\$260	\$1,524
107	CHEMICAL TECHNOLOGY DIVISION	\$540	\$411	\$0	\$789	\$967	\$2,707
112	REACTOR ANAL & SAFETY	\$10,208	\$957	\$18,520	\$5,336	\$-18,100	\$16,921
114	MATLS & COMP TECH DIV	\$13,797	\$1,334	\$128	\$2,295	\$2,388	\$19,941
115	ENGINEERING PHYSICS DIVISION	\$3,676	\$806	\$15,477	\$2,448	\$1,603	\$24,010
116	REACTOR ANALYSIS	\$24,912	\$5,436	\$54,965	\$9,069	\$29,593	\$123,976
117	APPLIED PHYSICS-ANL WEST	\$2,237	\$11	\$9,400	\$213	\$348	\$12,209
118	REACTOR EXP & EXAM DIV	\$1,992	\$238	\$1	\$175	\$184	\$2,589
119	ANALYTICAL LABORATORY ANL-WES	\$0	\$0	\$0	\$0	\$100	\$100
171	ENGRG RES PROG DIR	\$2	\$0	\$0	\$11	\$129	\$132
197	SPECIAL PROJECTS OFFICE	\$192	\$0	\$0	\$5	\$3,066	\$3,118
211	ENGINEERING PHYSICS DIVISION	\$39	\$0	\$0	\$5	\$105	\$177
269	CHEM TECH DIV-ANALYTICAL CHEM	\$66	\$0	\$0	\$3	\$248	\$393
271	ENGRG RES PROG ADMIN	\$142	\$0	\$0	\$0	\$0	\$142
SUBTOTAL		\$60,186	\$9,307	\$98,498	\$21,714	\$21,098	\$210,803
PHYSICAL RESEARCH							
105	MATERIALS SCIENCE DIVISION	\$518	\$2,841	\$534	\$1,006	\$450	\$5,350
109	PHYSICS DIV	\$1,852	\$615	\$1,477	\$1,487	\$747	\$6,177
120	CHEMISTRY DIV	\$2,477	\$3,839	\$15,503	\$309	\$445	\$22,573
136	INT PULSE NEUT SOURCE PROG	\$109	\$932	\$5,647	\$446	\$169	\$7,302
137	HIGH ENERGY PHYSICS DIV	\$375	\$1,137	\$8,494	\$677	\$686	\$11,369
139	DIV OF EDUCATIONAL PROGRAMS	\$362	\$0	\$0	\$60	\$90	\$513
145	MATHEMATICS & COMPUTER SCI DI	\$203	\$14	\$575	\$195	\$4,579	\$5,566
146	CTD DIV - SCI APPL & RES	\$23	\$0	\$0	\$42	\$88	\$153
273	PHYSICAL RESEARCH PROGRAM ADM	\$63	\$0	\$0	\$30	\$139	\$232
SUBTOTAL		\$5,981	\$9,379	\$32,230	\$4,252	\$7,392	\$59,235
EXTERNAL							
751	FERMI NATIONAL LABORATORY	\$438	\$0	\$0	\$265	\$365	\$1,068
752	NAVY	\$8,177	\$0	\$0	\$1,697	\$5,321	\$15,195
753	MORGANTOWN ENERGY TECH CENTER	\$9	\$0	\$0	\$400	\$7	\$416
754	DEPARTMENT OF ENERGY AT ANL	\$2	\$0	\$0	\$0	\$0	\$2
756	LOS ALAMOS	\$0	\$0	\$0	\$0	\$-36	\$-36
760	ABBOTT LABORATORIES	\$6	\$4	\$41	\$3	\$0	\$54
763	GENERAL ELECTRIC COMPANY	\$0	\$1	\$0	\$0	\$0	\$1
765	WESTINGHOUSE HANFORD COMPANY	\$0	\$0	\$0	\$0	\$0	\$0
766	BECHTEL NATIONAL, INC.	\$0	\$178	\$2,065	\$56	\$1	\$2,299
775	SMITHSONIAN	\$0	\$0	\$0	\$0	\$3	\$3
777	UNIVERSITY OF CHICAGO AT ANL	\$17	\$0	\$0	\$151	\$0	\$168
778	ARGONNE CREDIT UNION	\$4	\$0	\$0	\$0	\$0	\$4
779	UNIVERSITY OF ILLINOIS AT CHI	\$4	\$0	\$0	\$0	\$0	\$4
780	NEW BRUNSWICK LABORATORY	\$10	\$0	\$0	\$0	\$6	\$16
781	STATE OF ILL. DEPT. MENTAL HE	\$0	\$0	\$0	\$0	\$0	\$0
782	PACKER ENGINEERING	\$2	\$21	\$0	\$9	\$0	\$32
783	WEST VALLEY NUCLEAR SERVICES	\$14	\$0	\$0	\$0	\$0	\$14
784		\$4	\$202	\$177	\$12	\$0	\$396
SUBTOTAL		\$8,687	\$406	\$2,284	\$2,595	\$5,667	\$19,639

CC	CCHNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
			OPERATIONS				
143	SUPP SERV DIV - ELEC DEPT	\$97	\$1	\$0	\$267	\$233	\$598
148	HUMAN RESOURCES-MEDICAL DEPT	\$522	\$0	\$0	\$64	\$309	\$895
150	SUPPORT SERV DIV - SPEC MATLS	\$110	\$0	\$0	\$15	\$131	\$256
161	TECH INFO SERVICES DEPT	\$350	\$5,622	\$0	\$1,594	\$591	\$8,157
201	OFFICE OF THE DIRECTOR	\$219	\$0	\$0	\$282	\$105	\$605
202	OFC OF CHIEF OPER OFCR	\$19	\$0	\$0	\$87	\$101	\$207
210	SUPP SERV DIV - CENT SHOPS	\$250	\$0	\$0	\$58	\$442	\$750
216	SUPPORT SERVICES DIVISION	\$105	\$0	\$0	\$47	\$108	\$260
222	PLANT FAC & SERV-LODGING FAC	\$0	\$0	\$0	\$2	\$100	\$102
232	SUPPORT SERV DIV - SECURITY	\$174	\$0	\$0	\$0	\$168	\$342
234	SUPP SERV DIV-HEALTH PHY	\$119	\$0	\$0	\$11	\$143	\$273
235	SUPP SERV DIV-ENV SAFE HEALTH	\$716	\$0	\$0	\$99	\$335	\$1,150
236	SUPPORT SERV DIV - FIRE DEPT	\$6	\$0	\$0	\$0	\$101	\$107
245	COMPUTING AND TELECOM DIV	\$10,766	\$0	\$0	\$3,234	\$1,766	\$15,766
247	COMP & TEL DIV - COM SERV	\$1,364	\$0	\$0	\$367	\$905	\$2,635
260	SUPP SERV DIV-GRAPHIC ARTS	\$158	\$179	\$0	\$22	\$191	\$550
265	ELECTRONIC PUBLISHING SERVICE	\$0	\$0	\$0	\$40	\$164	\$61
275	OFFICE OF PUBLIC AFFAIRS	\$406	\$0	\$0	\$0	\$16	\$56
276	OFC PUB AF - MOTN PIC UNIT	\$39	\$0	\$0	\$0	\$0	\$0
296	TELECOM COST/RECOVERY	\$0	\$0	\$0	\$65	\$0	\$65
315	SUPP SERV DIV-MATLS & SERV	\$1,360	\$0	\$0	\$967	\$362	\$2,689
316	PLANT FAC & SERV-VEH MAINT	\$0	\$0	\$0	\$0	\$166	\$166
317	PLANT FAC & SERV-DRIVARIC SER	\$9	\$0	\$0	\$1	\$100	\$109
319	SUPP SERV DIV-TRAVEL OFC	\$2	\$0	\$0	\$112	\$100	\$214
322	SUPP SERV DIV-PROCUREMENT	\$29	\$1	\$0	\$1	\$102	\$133
333	QA, ENVIR & SAFETY OFC	\$128	\$0	\$0	\$26	\$202	\$357
336	SUPP SERV DIV - INSPECTION	\$10	\$0	\$0	\$0	\$1	\$12
400	OFC OF CHIEF FIN OFFICER	\$29,087	\$0	\$0	\$2,522	\$7,386	\$38,995
401	ACCOUNTING	\$0	\$0	\$0	\$150	\$0	\$150
402	OFC CHIEF FIN OFCR-DATA ENTRY	\$6	\$0	\$0	\$1	\$311	\$386
403	BUDGET OFFICE	\$74	\$0	\$0	\$0	\$0	\$0
410	HUMAN RESOURCES DEPARTMENT	\$7,426	\$0	\$0	\$968	\$1,750	\$10,144
412	AFFIRM ACTION PROGRAM	\$41	\$0	\$0	\$45	\$100	\$186
501	PLANT FAC & SERV-BLDG MAINT	\$31	\$0	\$0	\$49	\$436	\$516
502	PLANT FAC & SERV-INSTALLATION	\$9	\$0	\$0	\$2	\$100	\$111
503	PLANT FAC & SERV-GROUNDS	\$0	\$0	\$0	\$0	\$100	\$100
504	PLANT FAC & SERV-CUSTODIAL	\$2	\$0	\$0	\$0	\$100	\$102
505	PLANT FAC & SERV-WASTE MGMT O	\$37	\$0	\$0	\$51	\$105	\$193
506	PLANT FAC & SERV-PLANT MGR OF	\$357	\$0	\$0	\$16	\$308	\$680
510	PLANT FAC & SERV-UTILITY SYST	\$0	\$0	\$0	\$0	\$116	\$116
512	PLANT FAC & SERV-FAC PLNG/ENG	\$539	\$0	\$0	\$44	\$211	\$794
530	SITE MGRS OFC-ANL WEST	\$11	\$0	\$0	\$0	\$101	\$112
531	PERSONNEL-ANL WEST	\$158	\$0	\$0	\$66	\$100	\$324
532	SPECIAL MATLS-ANL WEST	\$587	\$0	\$0	\$149	\$237	\$973
533	ACCOUNTING-ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
534	PURCHASING-ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
535	SECURITY - ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
536	SAFETY STAFF-ANL WEST	\$107	\$0	\$0	\$0	\$102	\$209
537	INFORMATION SERVICE-ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
538	MATLS HANDLING-ANL WEST	\$44	\$0	\$0	\$4	\$100	\$147
548	ANL WEST GENERAL EXPENSE	\$139	\$0	\$0	\$45	\$1	\$186
550	COMPUTER APPL & SERV - ANL-W	\$71	\$0	\$0	\$11	\$103	\$185
551	RAD MONITORING-ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
554	MACHINE SHOP-ANL WEST	\$19	\$0	\$0	\$2	\$100	\$121
556	SITE ENGRG-ANL WEST	\$75	\$0	\$0	\$22	\$100	\$197
557	PLANT SERVICES-AW-SERVICE REQ	\$24	\$3	\$0	\$7	\$100	\$134
558	PLANT SERVICES-AW-FUNCTION	\$2	\$0	\$0	\$0	\$0	\$2
561	OFC OF QUALITY ASSURANCE - AW	\$2	\$0	\$0	\$0	\$101	\$103
	SUBTOTAL	\$55,807	\$5,810	\$0	\$11,562	\$19,708	\$92,888
	TOTAL	\$143,996	\$40,954	\$217,513	\$47,440	\$60,885	\$510,789



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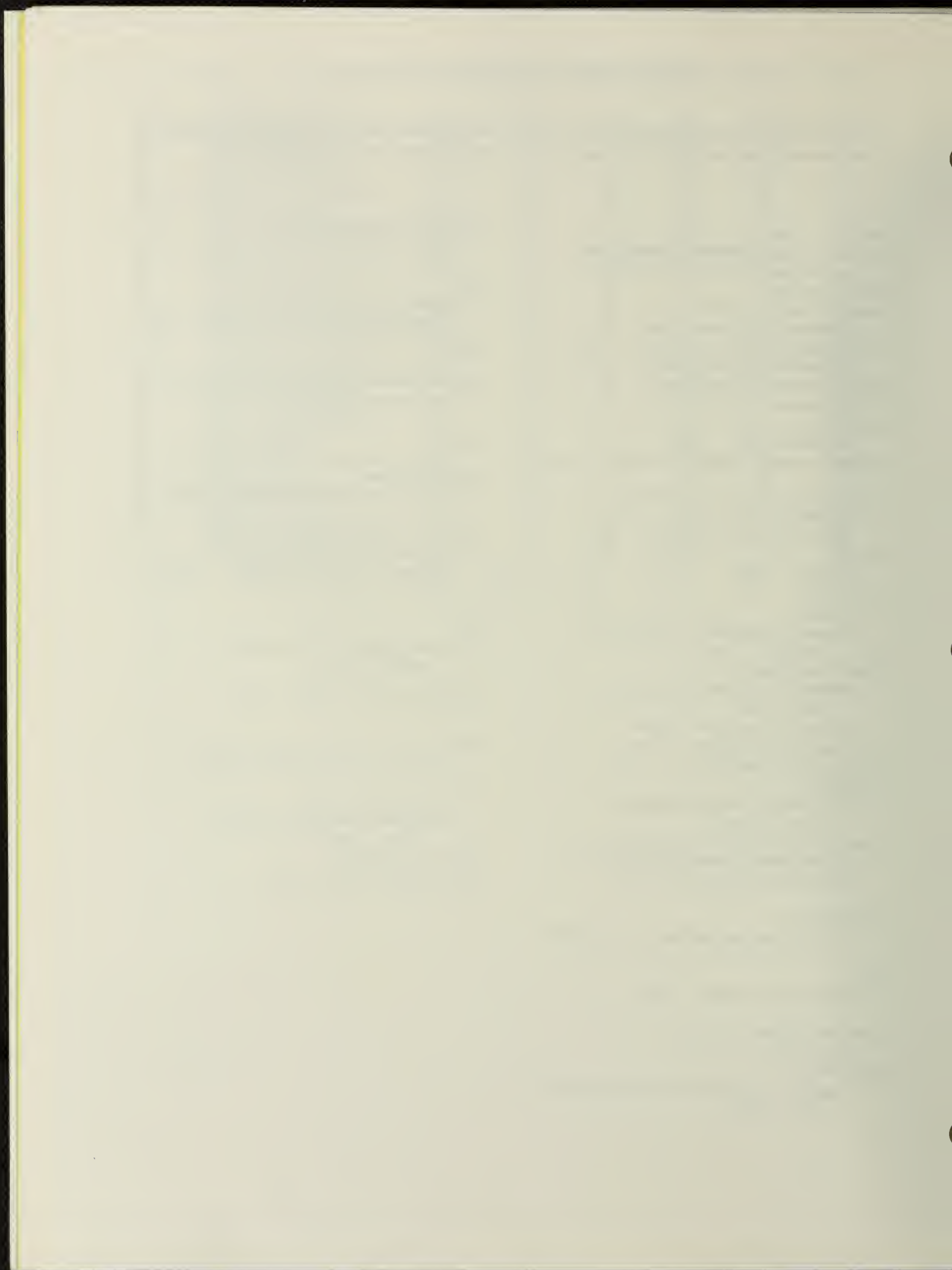
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## COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	Onsite (Illinois)	Onsite (Idaho)	Offsite (Area Code 708)
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	n.a.	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		

### CICS, CMS, Wylbur, and TSO Interactive Computing Services

IBM 3270 Protocol Converter	2-3270	n.a.	
1200 to 19.2K Bits Per Second (Onsite)			972-3270
1200 to 2400 Bits Per Second (Offsite)			972-3219
9600 to 19.2K Bits Per Second (Offsite)			
X.25 Terminal Multiplexor			
300 to 19.2K Bits Per Second (Onsite)	2-2525	n.a.	
1200 to 2400 Bits Per Second (Offsite)			972-2525
9600 to 19.2K Bits Per Second (Offsite)			972-2519
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	n.a.	972-2212
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	n.a.	972-7612
300 Bits Per Second	2-7603*	n.a.	972-7603*

\* When using a 300 bits per second modem, you must use a capital "P" to logon.

### Batch Remote Job Entry Service

2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573

### Central DEC VAX 8700

1200 to 19.2K Bits Per Second (Onsite)	2-8700	n.a.	
1200 to 2400 Bits Per Second (Offsite)			972-8700
9600 to 19.2K Bits Per Second (Offsite)			972-8745

### Argonne TCP/IP Network

1200 to 19.2K Bits Per Second (Onsite)	2-5588	n.a.	
1200 to 2400 Bits Per Second (Offsite)			972-5588
9600 to 19.2K Bits Per Second (Offsite)			972-4726

### Argonne MFEnet Dial-Up

300 to 19.2K Bits Per Second	2-7920	n.a.	972-7920
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### Tymnet Commercial Packet-Switching Network

Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.

## COMPUTING CENTER SERVICE SCHEDULE (All Times Are Central Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	VM/SP	VMS	MFEnet Gateway
Monday to Thursday	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

\*\* Except for the interruption of UNICOS from 4:00 a.m. until 8:00 a.m. on Mondays for maintenance, service continues uninterrupted past 4:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 3:00 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 3:00 p.m. before making plans that require the availability of a service the following morning.

## COMPUTER-BASED TRAINING COURSES

Currently, CTD offers one computer-based training course in CMS and five courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

### IBM CBT Course

(Enter SLFTEACH at the CMS prompt.)

SLFTEACH	Introduction and Advanced Concepts of Xedit
----------	---

### DEC CBT Courses on the Central VAX 8700

(Enter RUN "course name" at the DCL level.)

Course Name	Course Title
VMSCAI	Introduction to VAX/VMS
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers









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# ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division

VOLUME 22

NUMBER 3

DEPOSITORY

MARCH 1991

MAR 27 1991

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Computing Center Classes

# COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory

Building 221

Argonne, Illinois 60439-4822

FAX: 708-972-5983

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

		Room	Phone	Electronic Mail Address
Division Director	David Weber	A251	2-7155	B22788 AT ANLVM
Computer Protection Program Manager	Jean Troyer	A237	2-7440	B18216 AT ANLVM
Computing and Telecommunications Operations	Larry Amiot	B243	2-5432	B10523 AT ANLVM
Computer Network	Bob McMahon (Acting)	B239	2-7270	B17385 AT ANLVM
Data Communications	Linda Winkler (Acting)	B251	2-7236	B32357 AT ANLVM
Service Engineering	Paul Phillips	D118	2-4343	B36679 AT ANLVM
	Vern Tantillo	C112	2-4181	B06434 AT ANLVM
Computer Operations	Gary Schlesselman	A113	2-5437	B09819 AT ANLVM
Day and Weekend Operation	Bob Bilshausen	A134	2-5421	
Document Distribution Counter		A134		
Evening and Overnight Operation	Mike Monczynski	A134	2-5421	
Tape Librarian	Sandra Vasko	A134	2-7681	B18669 AT ANLVM
Systems Programming	Doug Engert	B231	2-5444	B17783 AT ANLVM
Telephone Services	Allen Winter	B247	2-2764	B07059 AT ANLVM
User Services	Fred Moszur	A121	2-7419	B27564 AT ANLVM
Computer Use Authorizations	Fran Carnaghi	A147	2-5425	B27596 AT ANLVM
Consultants		A139	2-5405	CONSULT AT ANLVM
Documentation Advice		A139	2-5405	CONSULT AT ANLVM
Education and Assistance	Pete Bertoncini (Acting)	E101	2-4827	B15013 AT ANLVM
Management Information Systems	Diane O'Brien	B151	2-7167	B26424 AT ANLVM
Financial Systems	Nick Moore	D239	2-8075	B31048 AT ANLVM
Human Resource Systems	Bob Hischier	B147	2-7272	B22639 AT ANLVM
Information and Production Services	Miriam Bretscher	B139	2-7252	B26187 AT ANLVM
Materials and Plant Systems	Rich Slade	B159	2-7329	B32848 AT ANLVM
Planning, Finance, and Administration	Mike Boxberger	A245	2-5638	B34540 AT ANLVM
Scientific Applications and Research	Charles Mueller	A231	2-7153	B11284 AT ANLVM

The Division operates a Cray X-MP/14 with UNICOS 5.1.8, a Sun 3/280 gateway, a central VAX cluster (a DEC VAX-11/750, a DEC VAX 8700, and a DEC VAX 8250) with VMS 5.3, an IBM 3084QX9, and three Hewlett-Packard 3000 minicomputers. Software on the IBM computers includes VM/SP CMS Release 5, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E), and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 708-972-5415.

The *Argonne Computing Newsletter* is published monthly by the Computing and Telecommunications Division, Argonne National Laboratory, Argonne, Illinois 60439; edited, prepared, and formatted by April Heiberger with CMS, Waterloo Script, and the Linotype L300P typesetter. This *Newsletter* was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.



## COMPUTING COMMENTS

### COMPUTING CLASSES SCHEDULED FOR MARCH 1991

During March 1991, CTD will offer three classes. The schedule is appended to this *Newsletter*. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of classes and notify attendees of any schedule changes. CTD will reschedule or cancel classes with fewer than six registrants *one week* prior to the scheduled date of the class.

*Overview of the X Window System* (one 2-hour session) presents an overview of the X Window System and instructs the beginning user on how to set up and to use the X environment. Topics include the system's design for portability, its organization, its architecture and components, and a general overview of how to run client applications. Emphasis will be on learning how to use X across the network and how to customize and use the window manager and the X environment. This class does not cover X programming, which may be taught in the future.

*Using Disspla Graphics with X Window Workstations* (one 1-hour session) is for users who want to learn how to tailor their Disspla programs to work with the X Window driver to produce animation. Familiarity with Fortran and Disspla is necessary.

*Creating Images for Imagetool and X DataSlice* (one 3-hour session) demonstrates NCSA Imagetool and X DataSlice for viewing data as raster images. Attendees should have a working knowledge of Fortran or C on the computer of their choice. Topics include C and Fortran programs that create data files for NCSA Imagetool and X DataSlice, data scaling and interpolation, different machines on which NCSA Imagetool and X DataSlice runs (Sun, IBM Personal Computer, Apple Macintosh, or any workstation that runs the X Window System), image file transfer to your workstation, and current output capabilities CTD offers.

## CMS NEWS

### SCHEDULE FOR VM/XA CUTOVER

CTD continues to convert the IBM mainframe VM operating system to a newer Virtual Machine/Extended Architecture (VM/XA) version. The current VM/SP production operating system is running under an evolving version of the VM/XA operating system on one half of the IBM 3084 hardware. In CTD, testers are using several Management Information Systems (MIS) applications, execs, and commercial program products in the new VM/XA CMS environment.

Starting in late February and throughout March 1991, CTD is soliciting user participation in testing applications and new versions of software products in the new test CMS system available under VM/XA. Specifically, we need volunteers to test the IMSL, NAG, and REDUCE commercial software products. Limited amounts of free test time will be available during normal working hours. If you wish to participate in the test, contact the User Services consultants at extension 2-5405. If you need specific execs or commercial program products, make these needs known when you enroll for the testing.

At the end of March or in early April 1991, when CTD determines that the conversion to VM/XA can proceed, CTD will move all CMS users who have not participated in the testing to the new VM/XA CMS environment. Testers should move their VM/SP minidisks to the VM/XA environment prior to the general conversion.

### EXEC WRITING CONSIDERATIONS FOR VM/XA

Authors of Exec, Exec 2, or REXX programs should be aware that the conversion of the IBM CMS operating system from VM/SP to VM/XA may not be totally transparent to their programs. Some CP command responses are different between the two versions: either the returned response from CP has additional information on a line or the number of lines of a response has changed (generally increased). Also, within the VM/XA system, users can put themselves in one of two CMS environments: XA (the default) or 370 (available for compatibility purposes). It is possible for some CP com-



mands to produce a different response for each of the three environments: VM/SP, VM/XA, and VM/XA in 370 compatibility mode.

As part of the conversion procedure, CTD is revising its existing exec files that have failed in their original form on the VM/XA operating system. An IBM-supplied (but not IBM-maintained) software tool named XAMIGR is available on the userid PUBLIC 2 minidisk to help identify potential problem code. To use XAMIGR, you must first LINK and ACCESS the PUBLIC 2 minidisk:

```
CP LINK PUBLIC 2 vaddr
ACCESS vaddr filemode
```

where "vaddr" is any unassigned virtual address and "filemode" is any unassigned filemode letter. The CTD conversion team has found this software to be a valuable tool.

For more information, after linking to the PUBLIC 2 minidisk, enter:

```
HELP XAMIGR
```

Also, another file named MIGRATE HINTS is available on this minidisk that contains various hints, observations, and comments from the VM/XA migration team. We encourage you to read it.

#### **PLANS TO DROP FORTRAN HX FROM VM/XA**

In reviewing the usage of program products for the planned cutover to VM/XA, CTD has learned that the FORTHX command has rarely been used in the past 12 months. This level of usage does not warrant that CTD install Fortran HX as a program product on the VM/XA CMS system. Consequently, CTD plans to drop the obsolete Fortran H Extended compiler from the Fortran compilers available in CMS with VM/XA. If this plan adversely affects your applications, call the User Services consultants at extension 2-5405.

CTD recommends that CMS users use the FORTVS compiler for standard Fortran programs. The FORTVS LONGLVL (66) option is available for programs that still use the obsolete 1966 Fortran standard.

## **CRAY NEWS**

### **HOW TO TAKE ADVANTAGE OF NQS CHECKPOINT RESTART**

In the coming weeks, CTD expects to shut the Cray down more frequently to install and test Version 6.0 of the UNICOS operating system. If you are a Cray user, the risk of your Network Queuing System (NQS) batch request being interrupted during execution will increase, particularly for longer requests. Fortunately, Cray provides a mechanism for resuming interrupted batch requests automatically.

The Cray shutdown procedure takes a checkpoint of your active NQS batch request and preserves the contents of your \$SCRATCH directory. When we restart the Cray, NQS attempts to resume your request. In most cases, NQS can detect automatically when a checkpoint request cannot resume without jeopardizing correctness.

When necessary, you can force NQS *not* to resume your batch request by using the #QSUB -nc option. However, the indiscriminate use of -nc prevents many resumable batch requests from completing, thereby wasting CPU cycles and computing funds. Also, when a planned shutdown approaches, operators may hold back queued -nc requests in favor of ones that could be checkpointed.

Use the #QSUB -nc option *if and only if* your batch request must access magnetic tapes. (Magnetic tapes are removed at shutdowns.) Rely on NQS to detect other dangerous conditions automatically.

To help make your Cray batch request resumable:

- Do not write temporary files to the Unix /tmp or /usr/tmp directories, because these directories are not saved during shutdowns. Instead, write temporary files to your \$SCRATCH and \$SHORT directories.
- Avoid reading and writing magnetic tapes directly from C or Fortran applications. Instead, access disk files and copy files between disk and tape separately.

- Separate your magnetic tape operations into their own batch requests. Use `-nc` only on those requests, allowing a checkpoint by NQS of the bulk of your computing. (Helpful hint: Submit your tape processing batch requests to the short queue for higher priority.)

For further assistance, contact the User Services consultants at extension 2-5405.

### USING COMPUTER ASSOCIATES X WINDOW DRIVER ON THE CRAY

The Computer Associates (CA) X Window driver for Disspla will direct graphics output to any X Window server running Version 11, Release 2, or later of X. The X Window server can be any machine with a bitmap display (a Unix workstation, a VAXstation, an Apple Macintosh with Mac X, etc.). When using X with a Disspla program, you can view the graphics output interactively as it generates. X will open a graphics window on your workstation, where it will then direct the Disspla graphics. Animation is also possible by sending multiple Disspla images to the same window. To simplify the use of the X Window driver, CTD has created an interface named ANLXDRV that calls the X Window driver and permits animation from either interactive sessions or Network Queuing System (NQS) batch jobs.

To use the X Window driver for Disspla 11.0, replace your device nomination call with the following call:

```
CALL ANLXDRV(XORIGIN, YORIGIN, XLENGTH, YLENGTH,
             ICMAP, IPLOTSCAL, IPLOTSTK)
```

where XORIGIN and YORIGIN are the location of the origin of the graphics window in inches from the upper left-hand corner of your screen and XLENGTH and YLENGTH are the width and height in inches, respectively, of the graphics window.

ICMAP specifies the color map that X will use to display the colors with the following values:

- 0 Uses the default color map currently installed on the X Server.
- 1 The same as 0 except that a product color index is mapped to the X Window color index that

contains the color. Use this argument only when you plan to draw cell arrays.

- 2 Creates a new virtual color map that will be installed on the X server.
- 3 Uses dithering to simulate shades of grey on monochrome servers only.

IPLOTSCAL specifies the position and size of the window with the following values:

- 1 Creates a small window at the upper left-hand corner of the screen containing the CA logo, which the user repositions and resizes with the mouse. After the window is positioned and sized, place the cursor inside the window and press mouse button 1. If necessary, the graphics are scaled to fit in the graphics window.
- 2 Creates a graphics window at the position, width, and height specified by "XORIGIN," "YORIGIN," "XLENGTH," and "YLENGTH."
- 3 Scales the plot inside the graphics window.

IPLOTSTK specifies how the plots are stacked with the following values:

- 1 Causes the graphics window to disappear at the end of each plot when the user presses RETURN. Then the window reappears when another plot is drawn.
- 2 Causes the graphics window to remain on the screen between plots. This argument provides the capability to perform animation.
- 3 Creates a new graphics window for each plot. The user presses RETURN at the end of each plot to make it disappear.
- 4 Creates a new graphics window for each plot. The user does NOT press RETURN at the end of each plot.
- 1, -2, -3, -4 Has the same effect as 1, 2, 3, or 4. However, the negative values cause the driver to repair the graphics window after it has been damaged or by windows that were placed on top of it.

A sample call to ANLXDRV that provides for animation is:

```
CALL ANLXDRV(1.5, 1.0, 5.0, 6.0, 2, 2, -2)
```

This call creates a window at the upper left-hand corner of the screen that is 1.5 inches from the left side and 1.0 inches from the top of the screen. The window is 5.0 inches wide and 6.0 inches high. A virtual color map is created by setting the fifth



(ICMAP) parameter equal to 2. The plot is scaled and positioned according to parameters one through four by setting the sixth parameter (IPTSCAL) to 2. The seventh parameter (IPLOTSTK) is set to -2, causing the graphics window to remain on the screen between plots and to have the driver repair the graphics window after it has been damaged by other windows.

To link a Disspla 11.0 program with the X Window libraries, enter:

```
segldr -lX11,net $DISLIB11 prog.o
```

To allow a Cray Disspla program to open windows on your workstation, enter the following command on your workstation:

```
xhost +xmp.ctd.anl.gov
```

To instruct the Cray where to display the graphics, the shell environment variable DISPLAY has to be set. To define this shell variable in the Bourne Shell, enter (at the Cray prompt):

```
DISPLAY=ipnum:0.0
export DISPLAY
```

To define this shell variable in the C Shell, enter (at the Cray prompt):

```
setenv DISPLAY ipnum:0.0
```

where "ipnum" is the IP number or Internet name (node.domain) of your workstation running X. Interested users should attend the "Using Disspla Graphics with X Window Workstations" class described in the back of this *Newsletter*.

## GRAPHICS NEWS

### NEW VISUALIZATION VIDEO RECORDING SERVICES AVAILABLE

The Scientific Visualization Facility (SVF) is an initiative of CTD to provide ANL researchers with visualization assistance and services. A new video recording service and limited 35mm slide production are now available for users of selected applications.

Visualization applications, such as the National Center for Supercomputing Applications (NCSA) Image, Layout, DataSlice, and Spyglass Dicer for the Apple Macintosh and XImage and XDataSlice for Unix workstations display images stored in Hierarchical Data Format (HDF) files and in raw raster binary files.

CTD has developed X Window routines for Disspla 11.0 users on the Cray XMP and the VAX 8700 computers. CTD has scheduled a class to assist Disspla users in the use of the X Window capabilities; see the classes appended to this *Newsletter*. These routines use the Disspla X Window graphics driver to display images with X Window workstations and to store animations in a locally defined X Window Image Dump format.

CTD is prepared to receive animation files in the above formats for recording to videotape media. To distinguish different file formats easily, we use the convention of filename.ext where "ext" is HDF for Hierarchical Data Format files, XWD for single X Window Image Dumps, or BXWD for a file created by Disspla containing multiple X Window images.

CTD anticipates that users will use visualization applications to view animations locally at their workstations on a routine basis. The new video recording service is available to record video animations for viewing at meetings and conferences and for review by colleagues and sponsors. The Argonne Film and Video Group can provide various post-production editing services (including text generation and audio dubbing). The Film and Video Group requires master tapes in 3/4-inch Umatic format that can be edited to VHS or 3/4-inch cassettes.

To obtain a recording of your animation:

1. Write your HDF, XWD, or BXWD files to the Cray /n2 file system.
2. Enter `man svfvideo` on the Cray or `HELP svfvideo` on the central VAX 8700 computer for the necessary instructions to initiate your request.

Turnaround time for delivery of your videocassette will depend on the number of images in your animation and the number of separate user requests scheduled. After some experience with the demand for these services, we will attempt to better define

the turnaround schedule. Table 1 lists the CTD rates for video recording.

CTD offers classes to instruct users on how to modify applications programs to produce the required format for storing images (see the classes appended to this *Newsletter*). Also, SVF has equip-

ment to record and magnify images from a variety of graphics workstations (Silicon Graphics, Apple Macintosh, and Sun SPARCstations). To learn how we can help you with your video recording or other visualization needs, visit the SVF office (Building 221, Room A-142).

Table 1: CTD Rates for Video Recording

Animation Resource	Unit	Rate
A. Recording System Setup (Includes Data Transfer, Program Setup, Equipment Setup, and Initial Image Manipulation)	Session	\$75.00
B. Video Recording System Usage		
Interactive or Real-Time Recording	Hour	\$10.00
Stop-Frame Recording	Hour	\$5.00
C. Creation of BetaCam Master Tape (Retained by CTD)	Tape-Minute	\$2.00
D. 3/4" Dub from BetaCam Master (Required by Film and Video for Post-Production Editing)	10 Minutes	\$25.00
	20 Minutes	\$40.00
	30 Minutes	\$50.00
	60 Minutes	\$75.00
E. VHS or Betamax Format Copies	10 Minutes	\$15.00
	20 Minutes	\$25.00
	30 Minutes	\$35.00
	60 Minutes	\$50.00

Total Charge = A + (h\*B) + (l\*C) + D + E

where "h" is the hours of recording system usage and "l" is the length in minutes.

#### **X IMAGE AND X DATASLICE AVAILABLE ON ACHILLES**

CTD has installed two new tools for viewing 8-bit raster data and 3-dimensional scientific datasets: X Image and X DataSlice. Both tools are from the National Center for Supercomputing Applications (NCSA).

X Image displays 8-bit raster datasets in plain raster data and in raster Hierarchical Data Format (HDF) files. HDF is a standard that NCSA tools use and is becoming widely accepted. See *NCSA HDF Calling Interfaces and Utilities*, available at the Document Distribution Counter (Building 221,

Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

X DataSlice allows users to view raster data files and 3-dimensional scientific datasets that are in HDF format.

Both programs are on CTD's Sun4 Server (Achilles). To get an account on Achilles, call Account Services at extension 2-5425. To use either X Image or X DataSlice, you must have a workstation with the capability to run the X Window System.

To use these programs:



1. Start X Window on your local workstation.
2. Open a window and enter:

```
xhost +achilles.ctd.anl.gov
```

3. Logon to achilles.ctd.anl.gov.
4. To instruct Achilles where to display the graphics, the shell environment variable DISPLAY has to be set. To define this shell variable in the Bourne shell, enter (at the Achilles prompt):

```
DISPLAY=ipnum:0.0
export DISPLAY
```

5. To define this shell variable in the C shell, enter (at the Achilles prompt):

```
setenv DISPLAY ipnum:0.0
```

where "ipnum" is the IP number or Internet name (node.domain) of your workstation running X.

6. Then enter:

```
ximage
```

Or enter (for X DataSlice):

```
xds
```

The manuals for X Image and X DataSlice, *NCSA X Image for the X Window System Version 1.0* and *NCSA X DataSlice for the X Window System Version 1.0*, are available at the Document Distribution Counter.

For further information, contact John Rowlan at extension 2-7587.

### PLANS TO DROP SURFACE II FROM VM/XA

Because of insufficient usage, CTD does not plan to include Surface II (the contouring and surface display package from the Kansas Geological Survey) in VM/XA. The current version of Surface II dates from the early 1980s and has been surpassed by the Computer Associates Disspla product and the SAS Institute's SAS/Graph product. Users concerned about the absence of Surface II in VM/XA

should contact the User Services consultants at extension 2-5405.

## MANAGEMENT INFORMATION SYSTEMS

### ADMINISTRATIVE LONG-RANGE PLAN INPUT REQUESTED

Each year, CTD publishes *A Plan for Administrative Computing at ANL*. This *Plan* describes administrative computing systems planned or in use throughout the Laboratory. Management Information Systems (MIS) develops this document with the users of the administrative systems and the Administrative Data Processing Oversight (ADPO) Committee. To make the *Plan* as comprehensive and relevant as possible, MIS collects information about all administrative computing at the Laboratory. The FY1992--FY1994 *Plan* will mark the eleventh consecutive year MIS has issued this comprehensive long-range planning document.

James O'Kelley, Chairman of ADPO, requests all division directors, department heads, and project managers to contribute to the *Plan*. Information in the *Plan* about administrative systems includes:

- Description of all existing administrative computing systems at the Laboratory (including those on personal computer systems and minicomputers).
- Plans for administrative system development and system enhancements.
- Descriptions of computer hardware used or planned for each administrative system: personal computers, minicomputers, central IBM computers and VAX computers.
- Requirements for obtaining data electronically from an official administrative system to be used in your systems.
- Division plans for developing divisional administrative systems.

The ADPO Committee will begin to review ADPO funding proposals for FY1992 through FY1994 in May 1991. For assistance in developing

your administrative computing plans, contact MIS at extension 2-7156. *A Plan for Administrative Computing at ANL: FY1991 through FY1993* is available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

### **MERIT REVIEW SYSTEM POST-INSTALLATION REVIEW**

Last year, Human Resources (HR) funded the development of the Merit Review System to assist the divisions and HR in processing merit increase data. The system operates on the IBM 3084 computer with several other Laboratory major administrative systems, including the Integrated Financial System (IFS), the Argonne Materials Order System (AMOS), and the Personnel/Payroll Systems.

Approximately 36 people enrolled and used either the complete processing system for the merit review or part of the system with private systems developed and operated by their divisions. Several small organizations did not use the system but provided merit data to HR in a hard copy format.

HR is implementing the Merit Review System over a two-year period. During FY1990, HR installed the major processing components of the system, with refinements planned for this year. Starting in March 1991, a series of post-implementation meetings with HR, CTD, and user staff will identify the divisions' needs and where users experienced difficulties. To obtain the results of these meetings, call the Compensation Section of HR at extension 2-3015. A future *Newsletter* article will also give the results of these meetings.

### **INTEGRATED FINANCIAL SYSTEM UPDATE**

The Integrated Financial System (IFS) Project Team is beginning a post-implementation review of IFS. This review will determine if (1) the system is meeting current needs, (2) the original objectives have been met, (3) any system changes are necessary, and (4) ANL is making full use of the vendor software. The reviewers will compare the original goals and objectives to their current needs, thereby identifying future priorities for system enhancements.

Where appropriate, the reviewers will (1) propose solutions to meet the current needs, (2) make recommendations to improve the method for installing new systems, (3) make recommendations to improve the usefulness of system and software tools, and (4) make recommendations to incorporate the benefits into other systems.

Representatives of CTD, the Office of the Chief Financial Officer, Dun and Bradstreet Software, and Financial Applications to Effect Telesis (FACET) members will be involved in the post-implementation review. We expect to complete the review by early summer 1991.

Progress on all phases of the IFS project will be reported at the FACET meetings held on the second Wednesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

### **MVS NEWS**

#### **LIBRARIAN 3.7 SCHEDULED FOR PRODUCTION IN MVS**

On Monday, March 11, 1991, Librarian Version 3.7 will become the production version in MVS. The most significant addition in this Librarian release is the LIBAUDIT option. LIBAUDIT allows you to revise Librarian master file modules interactively with available text editors without losing the benefit of Librarian's change record audit trail. Previously, if you revised a Librarian module outside Librarian and replaced that module in the master file with a **-REP ALL** control statement, Librarian would mark every record in that module as changed. If your master file was initialized for archiving, Librarian would save the entire replaced module as a separate archive level. With LIBAUDIT, Librarian will automatically compare the original and changed modules whenever you use a **-REP ALL** control statement and only mark and archive the records that have actually changed. The benefits are:

1. Saving only the actual changes for archived modules results in significant disk space savings (which makes the archiving feature feasible for even large master files).



2. Marking only the changed records maintains a traceable audit trail for all modules, whether you revise them with Librarian control statements or with interactive editors.

MVS Wylbur is the most convenient editor to use with Librarian master files. You can **USE** or **COPY** (but not **SAVE**) Librarian master file modules similar to partitioned dataset members by appending the **LIBR** parameter to your commands:

```
USE name.master#module LIBR
```

```
COPY FROM name.master#module LIBR
```

To access Librarian 3.7, use the following JCL:

```
//stepname EXEC LIBU,PREFIX='master name'
```

where "master name" is the name of your Librarian master file (the **LIBU** procedure automatically appends ".MASTER" to the master file name you specify). You do not need to do anything special to take advantage of **LIBAUDIT**; Librarian automatically invokes **LIBAUDIT** whenever you replace a Librarian master file module with the **-REP ALL** control statement. We have increased the default **REGION** size in the **LIBU** procedure to 512K to accommodate the needs of **LIBAUDIT**, when it compares large modules for differences.

### **MVS CVOL CATALOGS TO BE CONVERTED TO ICF FORMAT**

In May 1991, CTD will convert the six user catalogs on disk volumes PER701 through PER706 from the OS CVOL format to the Integrated Catalog Facility (ICF) format. The OS CVOL format has been around since the early 1960s; the ICF format is newer, more efficient, and provides better security. IBM recommends that MVS sites convert all OS CVOL formats to ICF formats.

There will be some changes in the way you use ICF catalogs:

- You cannot use the IBM **IEHLIST** utility to list the contents of an ICF catalog; instead, use the IBM **IDCAMS** utility.
- In Wylbur, the **SHOW CATALOG FOR name** command will list the entire catalog structure

under the specified name; with CVOLs, only index levels are listed. If you want to see the volume(s) on which the dataset resides, add the **ALL** option to your **SHOW CATALOG** command. For example, **SHOW CATALOG FOR LIB** will tell you whether you have a **Bnnnnn.LIB** dataset cataloged; **SHOW CATALOG FOR LIB ALL** will tell you on which volume your **LIB** resides.

- You can catalog and/or uncatalog datasets as you do today with **JCL**, **Wylbur**, or the IBM **IEHPROGM** utility.
- If you are using Generation Data Groups (GDGs), then you will have to use the **DEFINE GDG** statement of the **IDCAMS** utility to build new GDG indices; the **IEHPROGM BLDG** statement will not work with ICF catalogs.

The following sample JCL lists all entries that begin with "Bnnnnn" in an ICF catalog:

```
//LISTCAT EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
LISTCAT LEVEL(Bnnnnn) VOLUME
/*
```

The following sample JCL uncatalogs (but does not scratch) dataset **Bnnnnn.OLDDATA**:

```
//UNCATLG EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
DELETE (Bnnnnn.OLDDATA) NOSCRATCH
/*
```

The following sample JCL defines a GDG. Only five generations will be kept; older generations will be uncataloged but NOT scratched.

```
//BUILDDGD EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//NEWGDG DD DSN=Bnnnnn.GDG,DISP=(NEW,KEEP),
// UNIT=PERM,VOL=SER=PER7nn,SPACE=(TRK,(0)),
// DCB=(...) <== Supply appropriate DCB parms.
//SYSIN DD *
DEFINE GDG (NAME(Bnnnnn.GDG) LIMIT(5) -
NOSCRATCH)
/*
```

When CTD converts the catalogs, we will change the pointers from the MVS master catalog to

the six user catalogs. The names of the catalogs will change, but users do not now use the names of the CVOLs in their JCL. The IBM reference manual for the IDCAMS utility is *MVS/370 Integrated Catalog Administration: Access Method Services Reference* (GC26-4051), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

## PERSONAL COMPUTING AND WORKSTATIONS

### PROCEDURES FOR PERSONAL COMPUTER SOFTWARE REGISTRATION CARDS

Most personal computer software today is sold in shrink-wrapped packaging. Typically, there is a warning not to open the wrapper unless you agree to the license conditions. Conversely, the warning may state that simply opening the wrapper commits you to the license conditions. In fact, these statements have no legal basis, and simply unwrapping the software will not commit you or the Laboratory to the license agreement. However, most personal computer software has a registration card that may entitle you to software updates, hot line assistance, newsletters, etc. All that the vendor asks is that you complete, sign, and return the registration card. Signing the registration card may be a commitment to the software license terms and conditions, some of which may be unacceptable to the Laboratory. Only the Procurement Department can commit the Laboratory to such agreements with vendors.

The Laboratory procedures for handling personal computer software registration cards are:

1. The user provides the requested information (such as, name, address, and serial number) but does not sign the card.
2. The user forwards the card to J. A. Ingraffia in Procurement, Building 201, Room 2J06.
3. Procurement reviews and revises the terms and conditions, if necessary, and mails the registration card to the vendor.

If you have questions about personal computer software registration cards, call J. A. Ingraffia at extension 2-3640.

## TELECOMMUNICATIONS NEWS

### HYDRA PROTOCOL CONVERTER UPGRADED

On Thursday, February 14, 1991, CTD upgraded the Hydra Protocol Converter, which enables users of ASCII terminals and terminal emulators to use IBM 3270 full screen features for CMS, the Customer Information Control System (CICS), and Wylbur. The purpose of the upgrade was to resolve difficulties we were experiencing with random port lock ups. Users need to note an important change in the behavior of the Hydra: After selecting your terminal type, you must now press the RETURN key. Users who use personal computers with terminal emulation programs and have automated dial-up and logon scripts to access the central IBM computers through the Hydra need to revise those scripts to work correctly with the new requirement. IBM Personal Computer Kermit users can obtain a new Kermit diskette with revised CALLSNA, CALLCICS, and CALLMCAT logon scripts, available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). If you have difficulty logging on with the upgraded Hydra Protocol Converter, call the User Services consultants at extension 2-5405.

## VAX/VMS NEWS

### PLANS FOR DISK SPACE

Disk space on the Argonne central VAX cluster has been scarce for the past few months. This article describes our plans to help users manage their disk space more effectively to ease the short-term space crisis and to acquire more disk space for long-term needs.

Currently, CTD is in a procurement cycle for upgrades to the Argonne central VAX cluster, including an increment of nine gigabytes of disk



storage and a Hierarchical Storage Controller (HSC). This combination will provide more storage and quicker access. Nine gigabytes is approximately a 75 percent increase in the existing disk storage. Four gigabytes are for the Argonne Information Management (AIM) system, and approximately 1.7 gigabytes are for an operational spare. The remaining space is for user temporary and permanent storage.

To meet the short-term needs of users who have active projects, we have installed local tools to help users manage their disk space. These tools are described in "Using Temporary and Permanent File Storage on the VAX" in the January 1991 *Newsletter* and "FSANALYZE Can Now Help You reduce Your File System Charges" in this *Newsletter*. Also, we have identified and contacted those users who have large amounts of inactive file space allocated to files. We will continue to identify and contact users to assist them to free up disk space for users who need it. If you need help with the local tools or other VMS file and disk management commands, call the User Services consultants at extension 2-5405.

#### **FSANALYZE CAN NOW HELP YOU REDUCE YOUR FILE SYSTEM CHARGES**

Since its introduction in January 1991, FSANALYZE has become an important file management tool for many VAX users. FSANALYZE is a Digital Command Language (DCL) procedure that analyzes files by their last access date (see "How To Identify and Remove Files You No Longer Use on the VAX" in the January 1991 *Newsletter*).

CTD has enhanced FSANALYZE to report the estimated monthly charges for your file system. FSANALYZE starts in a directory you specify and analyzes the files in that and all lower level directories. For large numbers of files, this analysis may take awhile. It displays a tabular report on your terminal that summarizes file system usage in the following categories: less than one month, one to three months, three to six months, six to twelve months, and over twelve months. FSANALYZE also generates a file for each category that lists individual files, file size, and the date of last access (that is, expiration date). FSANALYZE creates the following files in your default directory:

SUMMARY.SCN  
LESSTHANONE.SCN  
ONETOTHREE.SCN  
THREETOSIX.SCN  
SIXTOTWELVE.SCN  
OVERTWELVE.SCN

It reports the following information in each file usage category:

- Number of files
- Total disk space used in blocks
- Total disk space used in kilobytes
- Percent of the total disk space represented by the category
- Estimated monthly charges of disk space in the category

Files that have not been used in the last six months are candidates for user migration to tape or for removal (for example, by using the commands PURGE and DELETE). The Directory Manager (DM) utility can selectively delete unneeded files. The file space you release will reduce your cost of computing. It will also help fellow VAX users who need additional disk space to do their computing work. For assistance in moving files to tape, contact the User Services consultants at extension 2-5405.

For additional information on FSANALYZE and the reports it generates, enter:

\$ HELP FSANALYZE

#### **PLANS FOR UPGRADING VMS ON THE ARGONNE CENTRAL VAX CLUSTER**

CTD has begun to plan the upgrade of VMS on the Argonne central VAX cluster. Currently, we have a procurement under way for a VAX 6000 Model 410 (VAX 6410) that will join the VAX 8700 in the cluster. The VAX 8700 and the VAX 6410 will share the existing workload of the VAX 8700.

The VAX 6410 must use VMS 5.4, which is currently the newest release of the operating software. Therefore, on Saturday, April 6, 1991, we will install VMS 5.4 on the VAX cluster in preparation for the new VAX. There will be no test period for this installation. VMS 5.4 has been available since December 1990, and we do not expect any difficulties.

VMS 5.4's many new features are in item "V54\_NewFeatures" in the online HELP library. To access this item, enter:

**\$ HELP V54**

### **EISPACK3 AVAILABLE ON ARGONNE CENTRAL VAX CLUSTER**

CTD has installed single-precision and double-precision versions of the EISPACK3 software (developed by Argonne's Mathematics and Computer Science Division) on the Argonne central VAX cluster; it is available for user testing. EISPACK3 is compatible with EISPACK2, which has been available in single-precision only as a component of the SLATEC mathematical library. Changes in EISPACK3 relative to EISPACK2 make the package portable and benefit users in the areas of robustness and speed. Also, the programs are more effective for vector processing and, therefore, benefit future operations. Since the algorithms for convergence are different, you may notice different values in the least significant digits of your results between jobs using EISPACK2 and EISPACK3.

Although EISPACK3 is not part of the SLATEC mathematics subroutine library, EISPACK2 is, but only in single-precision. We have eliminated the EISPACK2 routines and have incorporated the EISPACK3 routines in the SLATEC library. Hence, you can use the EISPACK3 subroutines just as you have used EISPACK2 (that is, by linking your programs to the SLATEC library). Until the new SLATEC with EISPACK3 becomes the production default version, you must use the SETUP command to create the environment that provides access to the revised version. Before linking, you must execute the following command one time in your session:

**\$ SETUP SLATEC /V=NEW**

To use EISPACK3, specify "/V=NEW" on the SETUP command; EISPACK2 is available by omitting this option. (Normally, the SLATEC libraries are available without using the SETUP command.) Then, you can enter your LINK command directives. To link to the SLATEC library containing the single-precision copy of EISPACK3, enter:

**\$ LINK your-programs, SLATEC/OPT**

To link to the SLATEC library containing the D\_floating or G\_floating copies of EISPACK3, enter:

**\$ LINK your-programs, SLATECx/OPT**

where "x" is D or G, respectively. (If you use the G-floating library, you must compile your programs with the "/G\_FLOAT" compiler option.)

After a three-month period of user testing, CTD will make the revised SLATEC with EISPACK3 the default. To obtain online help for EISPACK and all of the other mathematical routines in the SLATEC library, enter (for general information):

**\$ HELP SLATEC**

Or enter:

**\$ HELP EISPACK**

For online documentation of each subroutine, enter:

**\$ SLADOC**

## **BITS & BYTES**

### **RECENTLY UPDATED AND PUBLISHED DOCUMENTS**

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy):

#### **Digital Documents**

The *VMS User's Manual* (AA-LA98B-TE) provides an overview of the VMS operating system. This manual is for all users of the VMS operating system. This manual has two major parts. Chapters 1 through 13 describe VMS concepts and procedures users need to perform basic computing tasks. The Reference Section contains the following VMS user reference information: Digital Command Language



(DCL) commands, DIGITAL Standard Runoff (DSR) commands, the EDT editor, Extensible VAX Editor (EVE) commands, MAIL, and VMS Sort/Merge. This manual supersedes the *VMS General User's Manual*, Version 5.0, which had superseded the *VAX/VMS User's Manual* (AI-Y517A-TE).

### IBM Documents

The *VS FORTRAN Version 2 Interactive Debug Guide and Reference Release 3* (SC26-4223-2) describes how to use VS Fortran Version 2 Interactive Debug to monitor and test the running of VS Fortran programs. Scientists, engineers, other professionals, and students who use VS Fortran for engineering and scientific problem solving can use this book easily and effectively. Part One discusses how to use Interactive Debug, and Part Two describes all Interactive Debug commands.

### NCSA Software Tools Group Documents

*NCSA HDF Calling Interfaces and Utilities Version 3.1* (July 1990) is for users who are working on an application that involves the use of the National Center for Supercomputing Applications (NCSA) Hierarchical Data Format (HDF) files. To use HDF software, you need access to one of the following computer systems: a Cray with UNICOS, a Silicon Graphics system with Unix, an Alliant with CONCENTRIX, a Sun System 3 with Unix, a VAX terminal with Unix, a VAX with VMS, a Macintosh with MacOS, or an IBM PC with MS-DOS or compatible model.

### Tymnet Documents

*BT Tymnet International and Domestic Access Locations* (C-002LOC) is a directory that will help you locate the telephone number that you should call for access to TYMNET. This pamphlet contains listings and telephone numbers for more than 850 TYMNET access locations in the United States, Canada, the United Kingdom, Japan, and the U.S. territories of Guam, Puerto Rico, and Saipan (Northern Marianas). The directory also includes information and access locations for TymDial 9.6. TymDial 9.6 is a new asynchronous access service that allows you to access the TYMNET network at speeds up to 9600 bps. This August 1990 pamphlet supersedes the June 1988 printing of *TYMnet Access Locations* (C-200LOC).

### University of Chicago Documents

The *University of Chicago Agreements with Personal Computer Vendors* (February 4, 1991) contains the latest lists of personal desktop computer discounts available through the University of Chicago to Argonne employees for both personal and Laboratory purchases. This revised price list supersedes the price list of January 21, 1991.

### X Window Documents

The *X Window System User's Guide* (0-937175-14-5) describes window system concepts and the application programs (clients) commonly distributed with Version 11, Release 4 of X. Because some commercial X systems still reflect X11, Release 3, this book highlights the important differences between the two releases. This book is for both first time and experienced users of the X Window System. Part One provides an overview of the X Window System and concepts and describes how to use the most important programs available in the X environment. Part Two tells you how to customize X to your liking. Part Three provides UNIX-style "man-pages" for each of the X programs or clients. Part Four contains useful reference information.

### Other Vendor Documents

*Mathematica: A System for Doing Mathematics by Computer* (0-201-51507-5) describes all the capabilities of the *Mathematica* system and assumes no prior knowledge of the system.

*Viruscan/Clean-Up for IBM PC V72* is a 5 1/4" diskette with the current release of Viruscan and Clean-up, a disinfectant program for the IBM Personal Computer. These programs can detect and correct known viruses (such as Jerusalem B, Fish, Fish6, and Yankee Doodle). CTD requests that you not make copies of these programs for others to use, because our license is limited to 100 copies of each of these programs. Copies of this diskette are available at the Document Distribution Counter. CTD is keeping a master list of all persons to whom these programs have been distributed. This V72 diskette supersedes the V67 diskette.

## USERS GROUP HIGHLIGHTS

### MINUTES OF COMPUTER USERS GROUP MEETING HELD FEBRUARY 5, 1991

Dotti Bingaman (Environmental Assessment and Information Sciences) opened the meeting at 3:05 p.m.

**Interfacing to the New TIS Information Management System.** Dotti Cardia (Computing and Telecommunications) demonstrated the new Argonne Information Management (AIM) System installed on the central VAX 8700 computer. The AIM System offers interactive access to the information databases of Technical Information Services (TIS). (See "Argonne Information Management System Available" in the February 1991 *Newsletter*.)

Future possible extensions of the system (besides increasing the citations included in the database that will be ongoing as disk space permits) could be the inclusion of private databases, such as the HEP pre-print library and an Argonne technical publications database, and the full text of the reference citations, which would require a large increase in the disk space used.

Those experiencing difficulties with the telecommunications aspects of the AIM System should contact the User Services consultants at extension 2-5405. For difficulties with the AIM System itself, contact Mary Coglianese at extension 2-8692.

**Revised PBX Ethernet Backbone Configuration.** Tim Kuhfuss (Computing and Telecommunications) reported on the reconfiguration of the connections to the Private Branch Exchange (PBX) Ethernet backbone. About 20 percent of the traffic from CTD to the PBX is just passing through on the way to external Ethernet connections. CTD has reconfigured the connections to allow a direct connection from the PBX to the external networks. This new configuration will allow faster connections to the outside networks and will reduce traffic on the CTD backbone. This change should be transparent to most ANL network users. Hosts not listening to routing information should manually change their default router to 130.202.20.43.

**Cisco Transmission Control Protocol/Internet Protocol Terminal Server in Production.** Tim Kuhfuss continued by announcing that the Cisco terminal server is now in production at extension 2-5588 onsite or at 972-4726 offsite. This server allows higher connection speeds of 9600 or 19.2K bits per second from a Telebit 2500 modem. The new server allows telnet, rlogin, and slip connection options.

**IBM XA Status Report.** Jerry Davison (Computing and Telecommunications) reported on the current status of the Extended Architecture (XA) on the IBM 3084 computer. On January 21, 1991, VM/SP began running under the VM/XA control program. Testing of the various XA components is under way. (See "Schedule for VM/XA Cutover" in this *Newsletter*.)

**CPC Meeting Report.** Dotti Bingaman reported on the Computing Policy Committee (CPC) meeting on December 20, 1990. Dave Weber (Computing and Telecommunications) summarized CTD utilization and recovery data for the period FY1986 through FY1991. Monthly recovery for FY1991 is approximately \$200,000 above the levels of previous years, but still averages \$100,000 below the CTD break-even point of \$730,000. DOE turned down Argonne's request to waive the DOE factor and depreciation charge (a 25 percent surcharge) for outside industrial and university users of the Cray. Dave also presented the list of projects approved by the Administrative Data Processing Oversight (ADPO) Committee. A total of \$1,149,900 was approved for the Applicant Information System, the Human Resource Business System, the Human Resource System replacement, the Integrated Materials Management System (IMMS), the TIS Argonne Information Management System, the Budget System, and the user environment and effort for the Financial System. The Management Council cut \$130,000 from the approved amount. The ADPO Committee decided to reduce the FY1991 funding for IMMS by the \$130,000 and to hold back some project funds while the Laboratory investigates alternative implementations on equipment other than the IBM mainframe.

John Unik (Support Services Division) stated that the General Purpose Equipment (GPE) funds have not been finalized yet, but he felt certain that the top items on CTD's priority list (the VAX cluster magnetic tape and disk storage controller, the VAX



disk storage subsystem upgrade, the used VAX cluster processor, and the high-speed network facilities) would be funded. As a result of the Tiger Team assessment, Environment Safety and Health activities will require a substantial portion of the \$2.2 million in GPE funds that Argonne will receive this year.

Hans Kaper (Mathematics and Computer Science) reviewed the applied mathematical sciences funding. Mandated cuts in the fusion program have eliminated a scheduled increase in the FY1991 applied mathematical sciences budget. If the High-Performance Computing and Communication Initiative for \$32 million is in the President's FY1992 budget request and receives funding, then plans are to fund three early starts in FY1991, with emphasis on promoting technology transfer of computer science to computational sciences. These early starts will probably be funded at approximately \$200,000 each and will focus on grand challenge work.

Dave Weber began a discussion of a Strategic Plan for CTD by showing DOE projections that the demand for supercomputing would grow at an annual rate of 30 percent. He also compared Argonne's supercomputing and advanced computing capabilities with other national laboratories. The Committee noted that none of the Energy Research (ER) laboratories seem to have much computing capability, which may be part of the ER policy to concentrate supercomputing facilities at selected locations and to provide network access to ER researchers. Although Argonne cannot compete with the National Energy Research Supercomputing Center (NERSC) in supercomputing, we should make a case for a unique, advanced facility here. Then, Dave presented four CTD planning alternatives: (1) A status quo option where we focus on the efficient use of the ANL Cray X-MP, provide high speed local and wide area data communications, integrate visualization technologies in scientific computing, support Laboratory-wide use of scientific workstations, and upgrade CPUs on a modest, incremental basis. (2) A modified status quo option where we do everything under the status quo and provide user support to ANL staff having access to parallel and massively parallel architectures, but do not initiate a substantive CPU acquisition. (3) A "gigaflop" transition plan where we do everything under the first two options and initiate the process to acquire a mature, state-of-the-art production machine with theoretical Gflop performance. (4) A "teraflop" transition plan

where we do everything under the first two options, perhaps pursue the third option, but focus efforts in large part on systems with theoretical teraflop performance and do not limit the search to mature computing alternatives. Dave then suggested dividing the CPC into three groups of five members each to discuss these options and other planning issues with CTD staff. The CPC concurred with this idea. CTD will organize the meetings to take place during the early part of 1991.

The CUG meeting adjourned at 4:15 p.m.

Ken Miles, CUG Secretary

#### **MINUTES OF GRAPHIC ARTS USERS GROUP MEETING HELD DECEMBER 13, 1990**

Chairperson Floyd Bennett (Energy, Environmental, and Biological Research Publishing Support Services) opened the meeting at 12:09 p.m. He distributed a sheet that quoted past Graphic Arts Users Group Statements of Purpose and asked that participants consider possible changes in the overall group policy, the meeting time, and the frequency of meetings. Floyd also pointed out that the new sign-up form for the group meetings contains space for suggestions about future topics. After a discussion about the frequency of meetings, the participants unanimously agreed to change the present bimonthly meetings to quarterly meetings. Some of the reasons for the change are that Graphic Arts (GA) has been communicating with its customers more frequently and promptly about new developments and the difficulty in coming up with original discussion topics for group meetings. However, GA encourages its customers to call with questions or problems as they occur rather than waiting for the quarterly Users Group meeting.

Personnel changes in GA are Joe Paulini (Production Manager), Mary Jo Thompson (Supervisor of Customer Services), Eve Yates (Administrative Assistant), and Cheryl Schaal (Secretary).

Joe Paulini repeated his request for volunteers to join the Copier Steering Committee. In anticipation of a new Laboratory-wide contract beginning in FY1992, GA will solicit bids within a few months and wants input from the various divisions and buildings on their copier needs.

What should be saved, for how long, and by whom? After a printing job is finished, authors or editors sometimes receive their metal plates, mounted negatives, rundown sheets, and other material in addition to the camera-ready pages from GA or the Government Printing Office (GPO) printer. GA will keep only the originals for forms, business cards, and other material to be reprinted soon. Also, GA suggests that you record ANL photo negative numbers inside a copy of a publication to save time in finding the original photos later. Aluminum plates and film negatives are reusable if stored with reasonable care. When they are no longer needed, return them to GA for recycling. To arrange for large quantities to go directly to the ANL recycling depot, call Joe Paulini at extension 2-8162. After the printing is done, you can discard the rundown sheets generated as part of the Technical Information Services (TIS) pre-press inspection. GA is deciding which of the 500,000 images in the Film Library they will keep.

Bryan Schmidt (Energy, Environmental, and Biological Research Publishing Support Services) asked about potential reflectivity problems when photo-mechanical transfers (PMTs) are pasted on bond or other dull surface stock. GA responded that reflectivity is rarely a problem but that poor originals can be. If the pasted-up image is a photocopy of more than first generation or is of mediocre quality, the printed version will be poor. However, the quality of a low-contrast or spotty original can often be improved by making a PMT from it. The PMTs made by photocopying on Paloma stock are fine, but they must be handled carefully to avoid damaging the toner image. When time and money permit, GA recommends PMTs for all paste-ups. However, PMTs are not of archival quality and will start deteriorating within a few months.

The next meeting will be held on Thursday, March 14, 1991, at noon in a location to be announced.

Chuck Malefyt, Graphic Arts Users Group Secretary

#### **MINUTES OF MACINTOSH USERS GROUP MEETING HELD FEBRUARY 13, 1991**

Bob Kampwirth (Materials Science) opened the meeting at 11:05 a.m.

Neil Fox (Central Region Manager for MacroMind at 708/717-6466 in Naperville, Illinois) demonstrated three software products from MacroMind: Director, Three-D, and MediaMaker. He showed how they could produce a multimedia presentation on the Apple Macintosh by using graphics, text, animation, CD audio, and video (VCR). The final product, which can be reviewed and transferred to videotape as a presentation-quality video, is impressive. The whole process is complex yet looks easy. Neil said it took him about three weeks to become proficient with this system.

With MacroMind Director, Version 2.0, one can quickly import and arrange graphics, text, video, animations, and sounds to create a complete multimedia presentation. One has complete control of the way that the elements are put together. One can also add HyperCard-like buttons that allow the user to be interactive with the presentation on the Apple Macintosh. The list price for MacroMind Director is \$895. To run MacroMind Director, 2 megabytes of random-access memory (RAM) are necessary. Neil recommends 8 megabytes of RAM. A runtime utility called MacroMind Player is supplied so that the presentation can be distributed for viewing on the Apple Macintosh by those who do not have the MacroMind Director application.

MacroMind Three-D is a video production tool for three-dimensional animation and rendering on the Apple Macintosh computer. Its output can be used with MacroMind Director. It lists for \$1,495.

MacroMind MediaMaker allows one to edit, assemble, and synchronize video with Apple Macintosh graphics, sound, and animation to create multimedia presentations and videotapes. As demonstrated by Neil, this process looks easy. MediaMaker lists for \$695.

Lee Wagar (Graphic Arts) estimated that the cost for a basic system would be approximately \$10,000 (including hardware and software). Currently, Graphic Arts does not have such a system, but they could see acquiring such an Apple Macintosh-based multimedia system in the future.



Lee Wagar (Graphic Arts) mentioned that Graphic Arts has several different kinds of Radius monitors. If you would like a tour, call Lee at extension 2-5603. She also announced that Chuck Beck (Electronics) has a spare FastPath 4 Shiva (formerly Kinetics) box. If you would like to use it, call Chuck at extension 2-5223.

After the meeting, Bob Kampwirth reported that Dataproducts will take any Apple LaserWriter as a trade-in on a Dataproducts laser printer. For details, call Scott Stanton (Dataproducts) at 708/803-1390.

The March 1991 meeting will feature LabView 2.0 software and hardware from National Instruments. The April 1991 meeting will explore ways to exchange data and text between the Apple Macintosh and IBM personal computers. The May 1991 meeting will include a demonstration of hardware and software products from Radius. The June 1991 meeting will present the pen-based operating system called Go.

As in the past, we would like people to demonstrate what they are doing with the Apple Macintosh at the Macintosh Users Group meetings. If you have some ideas, contact Bob Kampwirth via QuickMail (MSD upstairs).

The Apple Macintosh Users Group normally meets the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee Wagar (Graphic Arts), Jim Lewellen (Computing and Telecommunications), or Ralph Leonard (Chemical Technology) for further meeting information. Lee Wagar sends the meeting announcement with QuickMail or E-mail, when possible, and with paper to those who have no electronic mail capabilities. If you have an electronic mail address and are not receiving an electronic meeting announcement, contact Lee Wagar at extension 2-5603 or via QuickMail.

The meeting adjourned at 12:50 p.m.

Ralph Leonard, Macintosh Users Group Secretary

# WORKLOAD STATISTICS (DECEMBER 21, 1990 THROUGH JANUARY 30, 1991)

## NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	END OF MONTH	ACTIVE DURING MONTH
CMS	1,236	1,241	510
Wylbur	1,672	1,671	415
MVS TSO	57	57	8
CICS	2,197	2,227	2
MVS Batch	2,197	2,227	672
VAX/VMS	644	740	272
Cray	340	345	136
All Systems	2,197	2,227	987

## INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				SESSION TIME (HRS)	CPU TIME (HRS)
	PRIME	NIGHT	WEEKEND	TOTAL		
<b>INTERACTIVE</b>						
CMS	13,363	2,527	3,495	19,385	45,536.5	124.93
Wylbur	8,809	365	856	10,030	14,531.6	11.71
MVS TSO	152	9	1	162	129.1	0.38
CICS	n.a.	n.a.	n.a.	n.a.	n.a.	0.00
VAX/VMS	9,630	963	1,248	11,841	14,531.6	74.28
Cray	101	16	18	135	1,555.1	20.78
<b>IBM BATCH</b>						
Class U	9,316	1,940	2,334	13,590	n.a.	45.79
Class W	18,308	1,493	2,285	22,086	n.a.	184.38
Class X	0	912	21	933	n.a.	93.56
Class Y	0	9	1,565	1,574	n.a.	71.80
Nonmain	20,489	2,807	3,873	27,169	n.a.	0.00
Total	48,113	7,161	10,078	65,352	n.a.	395.53
<b>CRAY BATCH</b>						
u	101	16	18	135	n.a.	2.91
w	2,862	195	467	3,524	n.a.	211.33
x	1,071	120	403	1,594	n.a.	68.89
y	3,377	854	1,810	6,041	n.a.	364.69
Total	7,411	1,185	2,698	11,294	n.a.	647.82
<b>VMS BATCH</b>						
W BATCH	1,147	962	1,584	3,693	n.a.	47.47
X BATCH	17	29	2	48	n.a.	113.15
Y BATCH	5	11	11	27	n.a.	51.31
Total	1,169	1,002	1,597	3,768	n.a.	211.93

## INPUT/OUTPUT

Lines Printed	58,984,791
Local	54,019,600
Remote	41,687,113
Fiche	31,637
Cards Punched-Local Only	8,069
Tape Mounts	5,090
Microfiche Developed	887,138
Microfiche Frames Developed	

## GRAPHICS

	# OF JOBS	# OF FRAMES
CalComp Jobs	25	n.a.
Matrix 35mm Color	34	74
Matrix-8 x 10	7	7
Matrix-Negative	0	0
FR80 Film Plots		
35mm Black/White/Unsprocketed	0	0
35mm Black/White/Sprocketed	0	0
35mm Color	0	0
16mm Black/White/Sprocketed	0	0
16mm Color	0	0

## DATA MANAGEMENT

Tapes Stored	24,556
New Tapes Saved	254
Tapes Released	634
Datasets Exported to Tape	2,478
Datasets Imported from Tape	1,161

\* n.a. = not applicable



AVAILABILITY STATISTICS, BY MACHINE (DECEMBER 21, 1990 THROUGH JANUARY 30, 1991)

	Monthly Totals	Hardware	Scheduled Software	Other	Hardware	Unscheduled Software	Other
<b>CMS</b>							
All Shifts							
Interruptions	16.00	1.00	13.00	0.00	0.00	2.00	0.00
Hrs Unavailable	35.96	4.80	28.31	0.00	0.00	2.85	0.00
MTF/Unscheduled	474.01					474.01	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2.00	0.00	0.00	0.00	0.00	2.00	0.00
Hrs Unavailable	2.85	0.00	0.00	0.00	0.00	2.85	0.00
MTF/Unscheduled	172.57					172.57	
<b>WYLBUR</b>							
All Shifts							
Interruptions	11.00	1.00	10.00	0.00	0.00	0.00	0.00
Hrs Unavailable	11.96	4.66	7.30	0.00	0.00	0.00	0.00
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
<b>MVS TSO</b>							
All Shifts							
Interruptions	11.00	1.00	10.00	0.00	0.00	0.00	0.00
Hrs Unavailable	11.36	4.66	6.70	0.00	0.00	0.00	0.00
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
<b>JES3</b>							
All Shifts							
Interruptions	11.00	1.00	10.00	0.00	0.00	0.00	0.00
Hrs Unavailable	10.81	4.58	6.23	0.00	0.00	0.00	0.00
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
<b>CICS</b>							
All Shifts							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
<b>VAX/VMS (VAX 8700)</b>							
All Shifts							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
<b>CRAY</b>							
All Shifts							
Interruptions	6.00	5.00	0.00	0.00	1.00	0.00	0.00
Hrs Unavailable	23.86	17.36	0.00	0.00	6.50	0.00	0.00
MTF/Unscheduled	960.13				960.13		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Hrs Unavailable	6.50	0.00	0.00	0.00	6.50	0.00	0.00
MTF/Unscheduled	341.50				341.50		

COMPUTING CENTER USE IN DOLLARS BY COST CENTER (DECEMBER 21, 1990 THROUGH JANUARY 30, 1991)

CC	CCKAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
ADVANCED PHOTON SOURCE							
130	ADVANCED PHOTON SOURCE DIV	\$355	\$351	\$0	\$390	\$105	\$1,201
272	ADVANCED PHOTON SOURCE	\$105	\$0	\$0	\$36	\$61	\$201
340	APS DIVISION MANAGEMENT	\$21	\$0	\$0	\$0	\$39	\$60
341	APS ACCELERATOR PHYSICS	\$338	\$2,758	\$1	\$572	\$154	\$3,824
342	APS DIAGNOSTICS	\$0	\$26	\$0	\$4	\$7	\$38
343	APS LINAC	\$4	\$235	\$0	\$4	\$356	\$595
344	APS RF	\$13	\$0	\$0	\$0	\$0	\$4
345	APS VACUUM	\$63	\$2,243	\$0	\$70	\$1,928	\$4,253
347	APS CONTROLS	\$63	\$1	\$0	\$0	\$8	\$73
348	APS MAGNETS	\$82	\$3	\$0	\$0	\$0	\$146
349	APS POWER SUPPLIES	\$43	\$0	\$0	\$1	\$0	\$44
350	APS DIVISION MANAGEMENT	\$14	\$0	\$0	\$0	\$10	\$23
351	APS INSERTION DEVICES	\$67	\$108	\$0	\$20	\$21	\$216
352	APS BEAM LINE FRONT ENDS	\$358	\$3,883	\$0	\$310	\$5,859	\$10,411
353	APS BEAM LINE INSTRUMENTATION	\$27	\$147	\$0	\$32	\$16	\$222
360	APS CONVENTIONAL FACILITIES	\$38	\$0	\$0	\$118	\$1	\$157
361	APS PROJECT DIRECTION	\$17	\$0	\$0	\$0	\$24	\$55
362	APS MANAGEMENT GENERAL	\$10	\$0	\$0	\$0	\$24	\$41
SUBTOTAL		\$1,574	\$9,756	\$1	\$1,558	\$8,675	\$21,564
ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH							
110	BIO & MED RES DIV	\$2,137	\$1,617	\$126	\$1,339	\$1,643	\$6,863
125	TECHNOLOGY TRANSFER CENTER	\$98	\$1	\$0	\$3	\$118	\$221
149	ENVIRONMENTAL RESEARCH DIV	\$1,747	\$230	\$582	\$874	\$900	\$4,332
155	ENERGY SYSTEMS DIVISION	\$14,439	\$3,321	\$58,731	\$3,171	\$1,172	\$80,834
165	ENV ASSESS & INFO SCI DIV	\$7,239	\$8,995	\$28,121	\$1,456	\$4,055	\$49,867
174	ENER/ENV/BIO PROG DIR	\$16	\$0	\$0	\$0	\$104	\$120
246	ES-NAT'L ENERGY SOFTWARE CTR	\$137	\$2	\$0	\$804	\$736	\$1,679
274	ENER/ENV/BIO RES PROG ADM	\$154	\$0	\$0	\$4	\$234	\$392
SUBTOTAL		\$25,966	\$14,166	\$87,560	\$7,652	\$8,963	\$144,307
ENGINEERING RESEARCH							
102	EBR-II PROJECT-ANL WEST	\$2,075	\$38	\$9	\$2,212	\$160	\$4,495
104	FUELS AND PROCESSES	\$1,962	\$54	\$7	\$201	\$20,848	\$23,071
107	CHEMICAL TECHNOLOGY DIVISION	\$764	\$1,652	\$0	\$959	\$493	\$3,868
112	REACTOR ENGINEERING	\$12,261	\$1,177	\$5,724	\$6,652	\$3,977	\$29,791
114	MATLS & COMP TECH DIV	\$5,029	\$3,137	\$574	\$2,724	\$1,566	\$13,030
115	ENGINEERING PHYSICS DIVISION	\$7,960	\$2,727	\$4,620	\$2,557	\$2,071	\$19,735
116	REACTOR ANALYSIS	\$49,212	\$13,769	\$86,996	\$15,170	\$-6,792	\$158,354
117	APPLIED PHYSICS-ANL WEST	\$5,242	\$8	\$17,694	\$338	\$481	\$23,764
118	REACTOR EXP & EXAM DIV	\$3,724	\$941	\$2	\$25	\$712	\$5,884
119	ANALYTICAL LABORATORY ANL-WES	\$4	\$0	\$0	\$0	\$100	\$100
171	ENGRG RES PROG DIR	\$0	\$0	\$0	\$0	\$108	\$112
197	SPECIAL PROJECTS OFFICE	\$357	\$0	\$0	\$19	\$166	\$542
211	ENGINEERING PHYSICS DIVISION	\$70	\$16	\$0	\$11	\$3,069	\$3,166
269	CHEM TECH DIV-ANALYTICAL CHEM	\$90	\$7	\$0	\$9	\$123	\$228
271	ENGRG RES PROG ADMIN	\$319	\$3	\$0	\$30	\$292	\$644
SUBTOTAL		\$89,068	\$23,331	\$115,626	\$31,087	\$27,374	\$286,486
PHYSICAL RESEARCH							
105	MATERIALS SCIENCE DIVISION	\$765	\$6,873	\$7,602	\$1,765	\$828	\$17,833
109	PHYSICS DIV	\$3,536	\$1,246	\$395	\$1,847	\$1,854	\$8,879
120	CHEMISTRY DIV	\$4,862	\$12,142	\$19,296	\$645	\$765	\$37,710
136	INT PULSE NEUT SOURCE PROG	\$197	\$1,159	\$18,800	\$536	\$434	\$21,125
137	HIGH ENERGY PHYSICS DIV	\$562	\$1,727	\$6,195	\$988	\$915	\$10,387
139	DIV OF EDUCATIONAL PROGRAMS	\$461	\$125	\$0	\$85	\$127	\$798
145	MATHEMATICS & COMPUTER SCI DI	\$294	\$42	\$1,310	\$1,232	\$4,620	\$7,498
146	CTD DIV - SCI APPL & RES	\$44	\$1	\$0	\$79	\$3	\$126
273	PHYSICAL RESEARCH PROGRAM ADM	\$96	\$0	\$0	\$45	\$150	\$291
SUBTOTAL		\$10,817	\$23,315	\$53,597	\$7,223	\$9,695	\$104,647
EXTERNAL							
751	FERMI NATIONAL LABORATORY	\$856	\$0	\$0	\$265	\$713	\$1,834
752	NAVY	\$13,666	\$0	\$0	\$1,967	\$10,725	\$26,357
753	MORGANTOWN ENERGY TECH CENTER	\$20	\$0	\$0	\$8	\$0	\$28
754	DEPARTMENT OF ENERGY AT ANL	\$4	\$5	\$0	\$3	\$0	\$12
760	ABBOTT LABORATORIES	\$12	\$0	\$0	\$0	\$0	\$92
763	GENERAL ELECTRIC COMPANY	\$0	\$1	\$0	\$0	\$0	\$1
765	WESTINGHOUSE HANFORD COMPANY	\$0	\$2	\$0	\$0	\$0	\$4
766	BECHTEL NATIONAL, INC.	\$0	\$428	\$8,238	\$286	\$1	\$8,954
775	SMITHSONIAN	\$0	\$0	\$0	\$0	\$5	\$5
777	UNIVERSITY OF CHICAGO AT ANL	\$36	\$0	\$0	\$152	\$0	\$188
778	ARGONNE CREDIT UNION	\$8	\$0	\$0	\$0	\$0	\$8
779	UNIVERSITY OF ILLINOIS AT CHI	\$8	\$0	\$0	\$0	\$0	\$17
780	NEW BRUNSWICK LABORATORY	\$17	\$0	\$0	\$0	\$11	\$12
781	STATE OF ILL. DEPT. MENTAL HE	\$0	\$0	\$0	\$0	\$0	\$66
782	PACKER ENGINEERING	\$4	\$53	\$0	\$8	\$32	\$938
783	WEST VALLEY NUCLEAR SERVICES	\$894	\$0	\$0	\$12	\$0	\$748
784		\$8	\$394	\$346	\$0	\$0	
SUBTOTAL		\$15,535	\$883	\$8,666	\$2,701	\$11,488	\$39,272



CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
			OPERATIONS				
143	SUPP SERV DIV - ELEC DEPT	\$155	\$6	\$0	\$285	\$309	\$756
148	HUMAN RESOURCES-MEDICAL DEPT	\$997	\$0	\$0	\$76	\$444	\$1,517
150	SUPPORT SERV DIV - SPEC MATLS	\$227	\$0	\$0	\$30	\$149	\$407
161	TECH INFO SERVICES DEPT	\$568	\$8,591	\$0	\$1,408	\$1,107	\$11,675
201	OFFICE OF THE DIRECTOR	\$604	\$0	\$0	\$155	\$200	\$960
202	OFC OF CHIEF OPER OFCR	\$21	\$0	\$0	\$88	\$101	\$210
210	SUPP SERV DIV - CENT SHOPS	\$385	\$0	\$0	\$75	\$563	\$1,023
216	SUPPORT SERVICES DIVISION	\$189	\$0	\$0	\$57	\$110	\$356
222	PLANT FAC & SERV-LODGING FAC	\$0	\$0	\$0	\$4	\$100	\$104
232	SUPPORT SERV DIV - SECURITY	\$384	\$0	\$0	\$0	\$143	\$527
234	SUPP SERV DIV-HEALTH PHY	\$310	\$1	\$0	\$15	\$271	\$597
235	SUPP SERV DIV-ENV SAFE HEALTH	\$1,241	\$0	\$0	\$116	\$610	\$1,968
236	SUPPORT SERV DIV - FIRE DEPT	\$6	\$0	\$0	\$0	\$101	\$107
245	COMPUTING AND TELECOM DIV	\$20,052	\$0	\$0	\$3,446	\$2,658	\$26,156
247	COMP & TEL DIV - COM SERV	\$2,934	\$0	\$0	\$609	\$1,784	\$5,327
260	SUPP SERV DIV-GRAPHIC ARTS	\$230	\$296	\$0	\$55	\$325	\$905
275	OFFICE OF PUBLIC AFFAIRS	\$659	\$0	\$0	\$46	\$212	\$917
276	OFC PUB AF - MOTN PIC UNIT	\$53	\$0	\$0	\$0	\$12	\$65
296	TELECOM COST/RECOVERY	\$0	\$0	\$0	\$65	\$0	\$65
315	SUPP SERV DIV-MATLS & SERV	\$3,084	\$0	\$0	\$1,013	\$682	\$4,779
316	PLANT FAC & SERV-VEH MAINT	\$0	\$0	\$0	\$0	\$203	\$203
317	PLANT FAC & SERV-DRIV&RIG SER	\$18	\$0	\$0	\$2	\$100	\$120
319	SUPP SERV DIV-TRAVEL OFC	\$4	\$0	\$0	\$0	\$100	\$105
322	SUPP SERV DIV-PROCUREMENT	\$49	\$1	\$0	\$4	\$116	\$171
333	QA, ENVIR & SAFETY OFC	\$206	\$1	\$0	\$39	\$281	\$527
336	SUPP SERV DIV - INSPECTION	\$10	\$0	\$0	\$0	\$1	\$12
400	OFC OF CHIEF FIN OFFICER	\$48,510	\$0	\$0	\$3,220	\$13,410	\$65,140
401	ACCOUNTING	\$0	\$0	\$0	\$86	\$100	\$186
402	OFC CHIEF FIN OFCR-DATA ENTRY	\$13	\$0	\$0	\$150	\$0	\$163
403	BUDGET OFFICE	\$71	\$0	\$0	\$1	\$371	\$442
410	HUMAN RESOURCES DEPARTMENT	\$11,367	\$0	\$0	\$1,254	\$1,893	\$14,515
412	AFFIRM ACTION PROGRAM	\$73	\$0	\$0	\$45	\$100	\$218
501	PLANT FAC & SERV-BLDG MAINT	\$44	\$0	\$0	\$45	\$361	\$450
502	PLANT FAC & SERV-INSTALLATION	\$30	\$0	\$0	\$4	\$102	\$137
503	PLANT FAC & SERV-GROUNDS	\$0	\$0	\$0	\$0	\$100	\$100
504	PLANT FAC & SERV-CUSTODIAL	\$4	\$0	\$0	\$0	\$100	\$104
505	PLANT FAC & SERV-WASTE MGMT O	\$62	\$0	\$0	\$53	\$100	\$215
506	PLANT FAC & SERV-PLANT MGR OF	\$482	\$0	\$0	\$18	\$321	\$822
510	PLANT FAC & SERV-UTILITY SYST	\$0	\$0	\$0	\$0	\$100	\$100
512	PLANT FAC & SERV-FAC PLNG/ENG	\$671	\$0	\$0	\$23	\$236	\$930
530	SITE MGRS OFC-ANL WEST	\$34	\$37	\$0	\$14	\$102	\$186
531	PERSONNEL-ANL WEST	\$193	\$0	\$0	\$46	\$100	\$339
532	SPECIAL MATLS-ANL WEST	\$830	\$0	\$0	\$149	\$264	\$1,244
533	ACCOUNTING-ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
534	PURCHASING-ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
535	SECURITY - ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
536	SAFETY STAFF-ANL WEST	\$196	\$0	\$0	\$0	\$103	\$299
537	INFORMATION SERVICE-ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
538	MATLS HANDLING-ANL WEST	\$98	\$0	\$0	\$16	\$100	\$214
548	ANL WEST GENERAL EXPENSE	\$139	\$0	\$0	\$48	\$1	\$189
550	COMPUTER APPL & SERV - ANL-W	\$126	\$1	\$0	\$11	\$133	\$272
551	RAD MONITORING-ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
554	MACHINE SHOP-ANL WEST	\$30	\$0	\$0	\$4	\$100	\$134
556	SITE ENGRG-ANL WEST	\$104	\$0	\$0	\$29	\$103	\$236
557	PLANT SERVICES-AW-SERVICE REQ	\$59	\$8	\$0	\$5	\$100	\$173
558	PLANT SERVICES-AW-FUNCTION	\$4	\$0	\$0	\$0	\$0	\$4
561	OFC OF QUALITY ASSURANCE - AW	\$4	\$0	\$0	\$0	\$102	\$106
	SUBTOTAL	\$95,532	\$8,944	\$0	\$12,814	\$29,686	\$146,976
	TOTAL	\$238,492	\$80,394	\$265,450	\$63,034	\$95,881	\$743,251

## COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	Onsite (Illinois)	Onsite (Idaho)	Offsite (Area Code 708)
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	n.a.	972-7273

Computer Callback Service 1-800-332-1478 (only within Illinois)

### CICS, CMS, Wylbur, and TSO Interactive Computing Services

IBM 3270 Protocol Converter			
1200 to 19.2K Bits Per Second (Onsite)	2-3270	n.a.	972-3270
1200 to 2400 Bits Per Second (Offsite)			972-3219
9600 to 19.2K Bits Per Second (Offsite)			
X.25 Terminal Multiplexor			
300 to 19.2K Bits Per Second (Onsite)	2-2525	n.a.	972-2525
1200 to 2400 Bits Per Second (Offsite)			972-2519
9600 to 19.2K Bits Per Second (Offsite)			n.a.
IBM 3174 Cluster Controller	2-3174	n.a.	
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	n.a.	972-2212
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	n.a.	972-7612
300 Bits Per Second	2-7603*	n.a.	972-7603*

\* When using a 300 bits per second modem, you must use a capital "P" to logon.

### Batch Remote Job Entry Service

2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573

### Central DEC VAX 8700

1200 to 19.2K Bits Per Second (Onsite)	2-8700	n.a.	
1200 to 2400 Bits Per Second (Offsite)			972-8700
9600 to 19.2K Bits Per Second (Offsite)			972-8745

### Argonne TCP/IP Network

1200 to 19.2K Bits Per Second (Onsite)	2-5588	n.a.	
1200 to 2400 Bits Per Second (Offsite)			972-5588
9600 to 19.2K Bits Per Second (Offsite)			972-4726

### Argonne MFEnet Dial-Up

300 to 19.2K Bits Per Second	2-7920	n.a.	972-7920
------------------------------	--------	------	----------

### Tymnet Commercial Packet-Switching Network

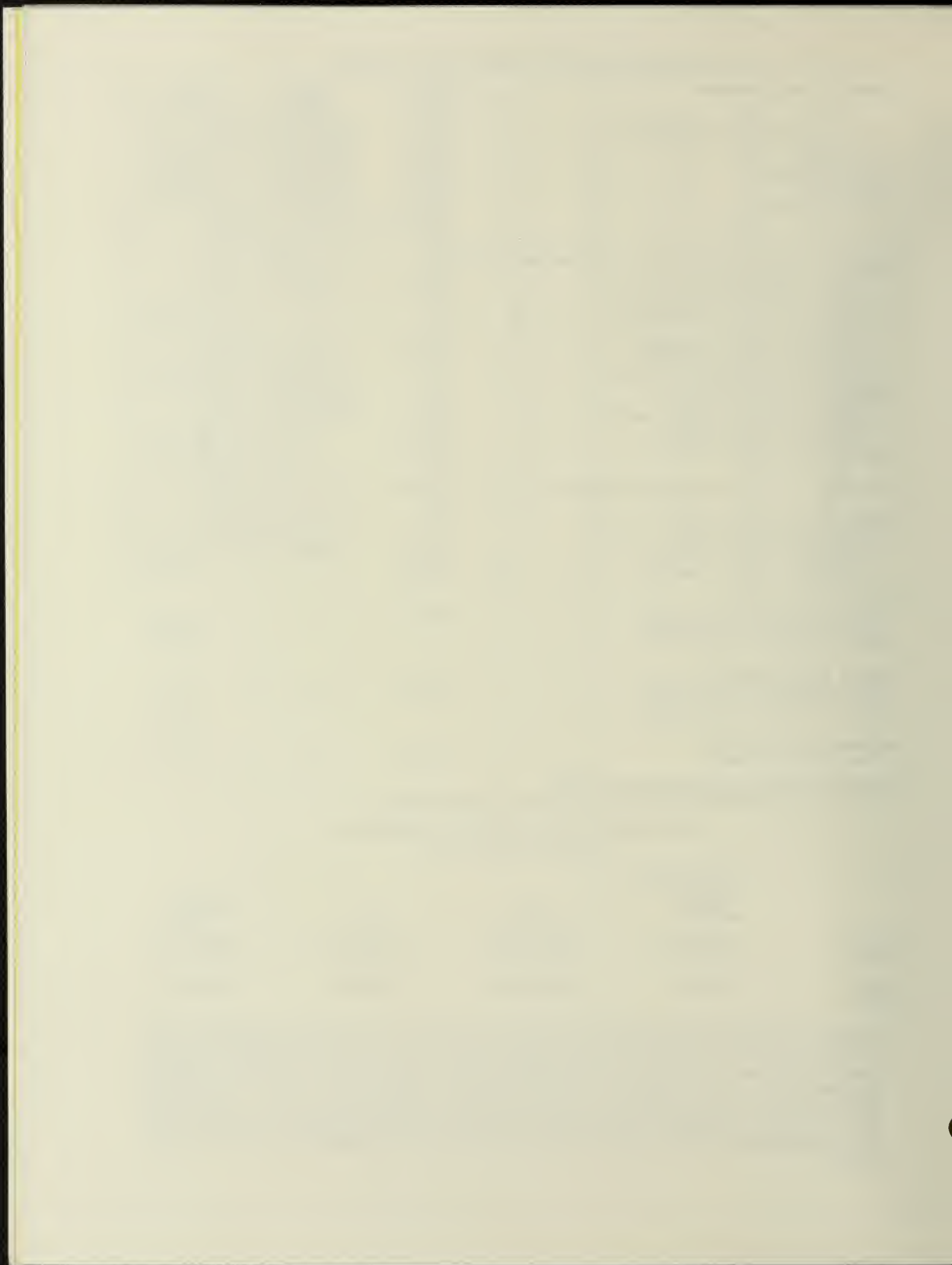
Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.

## COMPUTING CENTER SERVICE SCHEDULE (All Times Are Central Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	VM/SP	VMS	MFEnet Gateway
Monday to Thursday	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

\*\* Except for the interruption of UNICOS from 4:00 a.m. until 8:00 a.m. on Mondays for maintenance, service continues uninterrupted past 4:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 3:00 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 3:00 p.m. before making plans that require the availability of a service the following morning.





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Argonne National Laboratory  
Computing and Telecommunications Division  
March 1991

## COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering three classes. There is no charge for attending classes, unless otherwise indicated. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the class and notify attendees of any schedule changes. CTD will reschedule or cancel any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

### OVERVIEW OF THE X WINDOW SYSTEM

Goal: To learn how to use and set up the X Window System.

Length of Class: Two hours

Date and Time: March 25, 1991 (Monday), 9:00 a.m. to 11:00 a.m.

Location: Building 221, Room A-261

Suggested Reading: *X Window System User's Guide* (0-93712175-14-5)

Instructor: Dave Leibfritz

### USING DISSPLA GRAPHICS WITH X WINDOW WORKSTATIONS

Goal: To learn how to tailor your Disspla programs to work with the X Window System to produce animation.

Length of Class: One hour

Date and Time: March 25, 1991 (Monday), 11:00 a.m. to noon

Location: Building 221, Room A-261

Requirements: Familiarity with Fortran and Disspla

Instructor: Dave Leibfritz



## CREATING IMAGES FOR IMAGETOOL AND X DATASLICE

Goals:	To see what capabilities the National Center for Supercomputing Applications (NCSA) Imagetool and X DataSlice programs can provide for visual data analysis. To learn how to create Fortran or C programs to convert your data into the format required by these programs.
Prerequisite:	Working knowledge of C or Fortran
Length of Class:	One 3-hour session
Date and Time:	March 26, 1991 (Tuesday), 9:00 a.m. to noon
Location:	Building 221, Room A-261
Suggested Reading:	<i>NCSA Image for the Color Macintosh Version 2.0</i> <i>NCSA X Image for the X Window System Version 1.0</i> <i>NCSA X DataSlice for the X Window System Version 1.0</i> <i>NCSA HDF Calling Interfaces and Utilities Version 3.1</i>
Instructor:	Dave Lifka

## COMPUTER-BASED TRAINING COURSES

Currently, CTD offers one computer-based training course in CMS and five courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

### IBM CBT Course

(Enter SLFTEACH at the CMS prompt.)

SLFTEACH	Introduction and Advanced Concepts of Xedit
----------	---

### DEC CBT Courses on the Central VAX 8700

(Enter RUN "course name" at the DCL level.)

Course Name	Course Title
VMSCAI	Introduction to VAX/VMS
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers

To register for a class, call extension 2-5405.







# ARGONNE COMPUTING NEWSLETTER

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Argonne National Laboratory Computing and Telecommunications Division

VOLUME 22

NUMBER 4

DEPOSITORY

APRIL 1991

APR 22 1991

UNIVERSITY OF ILLINOIS  
AT URBANA-CHAMPAIGN

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## Computing Center Classes



# COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory

Building 221

Argonne, Illinois 60439-4822

FAX: 708-972-5983

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

		Room	Phone	Electronic Mail Address
Division Director	David Weber	A251	2-7155	B22788 AT ANLVM
Computer Protection Program Manager	Jean Troyer	A237	2-7440	B18216 AT ANLVM
Computing and Telecommunications Operations	Larry Amiot	B243	2-5432	B10523 AT ANLVM
Computer Network	Bob McMahon (Acting)	B239	2-7270	B17385 AT ANLVM
Data Communications	Linda Winkler (Acting)	B251	2-7236	B32357 AT ANLVM
Service Engineering	Paul Phillips	D118	2-4343	B36679 AT ANLVM
	Vern Tantillo	C112	2-4181	B06434 AT ANLVM
Computer Operations	Gary Schlesselman	A113	2-5437	B09819 AT ANLVM
Day and Weekend Operation	Bob Bilshausen	A134	2-5421	
Document Distribution Counter		A134		
Evening and Overnight Operation	Mike Monczynski	A134	2-5421	
Tape Librarian	Sandra Vasko	A134	2-7681	B18669 AT ANLVM
Systems Programming	Doug Engert	B231	2-5444	B17783 AT ANLVM
Telephone Services	Allen Winter	B247	2-2764	B07059 AT ANLVM
User Services	Fred Moszur	A121	2-7419	B27564 AT ANLVM
Computer Use Authorizations	Fran Carnaghi	A147	2-5425	B27596 AT ANLVM
Consultants		A139	2-5405	CONSULT AT ANLVM
Documentation Advice		A139	2-5405	CONSULT AT ANLVM
Education and Assistance	Pete Bertoncini (Acting)	E101	2-4827	B15013 AT ANLVM
Management Information Systems	Diane O'Brien	B151	2-7167	B26424 AT ANLVM
Financial Systems	Nick Moore	D239	2-8075	B31048 AT ANLVM
Human Resource Systems	Bob Hischer	B147	2-7272	B22639 AT ANLVM
Information and Production Services	Miriam Bretscher	B139	2-7252	B26187 AT ANLVM
Materials and Plant Systems	Rich Slade	B159	2-7329	B32848 AT ANLVM
Planning, Finance, and Administration	Mike Boxberger	A245	2-5638	B34540 AT ANLVM
Scientific Applications and Research	Charles Mueller	A231	2-7153	B11284 AT ANLVM

The Division operates a Cray X-MP/14 with UNICOS 5.1.8, a Sun 3/280 gateway, a central VAX cluster (a DEC VAX-11/750, a DEC VAX 8700, and a DEC VAX 8250) with VMS 5.3, an IBM 3084QX9, and three Hewlett-Packard 3000 minicomputers. Software on the IBM computers includes VM/SP CMS Release 5, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E), and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 708-972-5415.

The *Argonne Computing Newsletter* is published monthly by the Computing and Telecommunications Division, Argonne National Laboratory, Argonne, Illinois 60439; edited, prepared, and formatted by April Heiberger with CMS, Waterloo Script, and the Linotype L300P typesetter. This *Newsletter* was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

## COMPUTING COMMENTS

### COMPUTING CLASSES SCHEDULED FOR APRIL 1991

During April 1991, CTD will offer one workshop and two seminars. The schedule is appended to this *Newsletter*. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of classes and notify attendees of any schedule changes. CTD will reschedule or cancel classes with fewer than six registrants *one week* prior to the scheduled date of the class.

*Cray X-MP Fortran Vectorization Workshop* (one 8-hour session) is for users who want to optimize their Fortran programs to take full advantage of the Cray X-MP/14 high-performance computer. We will briefly cover Cray architecture, optimization and vectorization techniques, and the use of performance analysis tools. The remainder of the time will provide the workshop participants an opportunity to try these tools out on their own programs. Participants must have a Cray account and a program that has run on the Cray.

*SAS: An Overview of Statistics, Graphics, and Reporting Capabilities* (one 1-hour seminar) looks at the various pieces of the SAS Software System available on the IBM MVS and CMS operating systems, on the VAX 8700 VMS operating system, and for IBM Personal Computers. We will explore the ways that you can use the many available procedures to help you do your work (from report writing to simple statistics to complex 3-D graphical output).

*Tellagraf: An Overview of Its Graphics Capabilities* (one 1-hour seminar) presents a "top-down" view of the CA-Tellagraf interactive graphics software available on the IBM CMS and VAX 8700 VMS operating systems. It is also available on some of the divisional VAXes. Users can easily create word charts, line plots, bar and pie charts, and tables while retaining full control over the plot characteristics and data values. You can draw your completed plots on a wide variety of graphics hardcopy devices.

## COMPUTER PROTECTION

### CONCERN FOR COMPUTER VULNERABILITIES OF UNCLASSIFIED COMPUTERS

Recently, the Department of Energy sent a memorandum to the Laboratory expressing the concerns of several prominent organizations (for example, the National Research Council) about the vulnerability of unclassified computers to accidents and deliberate attacks. The memorandum states that in some instances within the Department of Energy and its contractor sites "even the minimal protective measures (such as passwords) were poorly implemented and administered." This memorandum expresses the importance of management commitment to the departmental computer security program and the attitude of people about computer security. It states:

All users of computer systems must be made aware of the vulnerabilities, the ways they can protect against these vulnerabilities, and how to properly manage their systems.

A computer user can strengthen the computer protection program by:

- Choosing good user verification (logon) passwords.
- Changing passwords at least once every six months.
- Not sharing passwords with others.

A good password:

- Is not in the dictionary.
- Is not easily associated with you, your name, your login identification, or other personal information.
- Is not the name of a well-known real or fictional character.
- Is a combination of alphabetical and special characters or numbers.



- Is easily remembered so you need not write it down.

Recommended choices for passwords include two short words joined by one or more special characters or numbers.

A system manager should:

- Read the bulletins on computer vulnerabilities from the Computer Incident Advisory Capability (CIAC). (These notices are available from Jean Troyer, the Laboratory's Computer Protection Program Manager.)
- Implement the security measures that are appropriate for the system and its environment.
- Practice good password management.
- Encourage the users of the system to choose good logon passwords.
- Encourage the users not to share their passwords with others.

To emphasize the need at ANL for management commitment, the Deputy to the Laboratory Director recently distributed the Department of Energy memorandum to all ANL division directors and department heads, with a request for their help in improving the effectiveness of the existing ANL computer protection program. Four specific points quoted from the ANL memorandum are:

1. You must appoint a Computer Protection Program Representative for your organization. If you do not currently have one, please appoint someone and inform Jean Troyer, the Laboratory Computer Protection Program Manager.
2. Personnel who manage, operate, program, or use computers must attend computer security awareness and education sessions. If your representative has not held these sessions for your people within the last year, please encourage your representative to do so.

3. Every major computer system or computer network at the Laboratory must have a written computer protection plan. These plans must be based on a careful assessment of the risks to that system. Also, risk assessments must be performed as a part of the procurement plan for each major new computer system or application to be purchased (or written) for the Laboratory. Ensure risk assessments have been completed before you sign any major computer procurement for computer hardware or software.

4. The Computer Protection Program Manager will notify you of infractions of computer protection policy by individuals in your organization. (Most often these infractions are of password policies that prohibit sharing user verification passwords and require passwords that are difficult to crack). If you do receive notification of infractions by any of your employees, please emphasize to the employee the importance of safeguarding ANL computers and the data they process by following the rules.

Computer users or system managers who have questions about the ANL computer protection program should contact Jean Troyer at extension 2-7440.

## **CRAY NEWS**

### **CHANGES TO CRAY JOB SCHEDULING**

In response to requests from the Computer Users Group, CTD has changed the definition of Network Queuing System (NQS) batch queues for short jobs on the Cray to give better response for daytime test runs and compiles. Some Cray users have found that the 30-second time limit for batch jobs was too

limiting and not practical to perform compilations for large programs and to run test cases needed to set up longer running batch jobs. Now, NQS gives preference to "u" and "w" batch jobs with a time limit of 2 minutes or less to improve turnaround for these types of batch jobs.

### CONVERSION SCHEDULE FOR UNICOS 6.0

On Monday, April 15, 1991, at 8:00 a.m., CTD will install the UNICOS 6.0 operating system on the Cray X-MP/14. If no major difficulties occur on April 15, UNICOS 6.0 will remain the production operating system. Otherwise, CTD will return to UNICOS 5.1.8 on Tuesday, April 16, 1991.

Because of internal design changes between the UNICOS 5.1.8 and UNICOS 6.0 implementations of the Network Queuing System (NQS) batch system, it will not be possible to carry over any submitted UNICOS 5.1.8 batch requests into UNICOS 6.0. CTD will purge from the batch queue all batch requests that have not run prior to the start of the 4:00 a.m. scheduled hardware maintenance period on April 15.

UNICOS 6.0 includes many new features at the system level and the user level. A welcome addition is the message system, which includes standardized error messages for many UNICOS software products (Fortran and I/O libraries, segldr, and debugging and performance tools). UNICOS 6.0 includes enhancements to the CDBX debugger, the tape subsystem, the Data Migration Facility, and the implementation of the Korn Shell.

UNICOS 6.0 introduces a new file system with features similar to the BERKELEY file system, including long file names (up to 255 characters) and symbolic links. Because of the incompatibility between the UNICOS 5.1.8 and the new UNICOS 6.0 file systems and in anticipation of the need to revert to the UNICOS 5.1.8 operating system if difficulties develop, CTD will not be converting to the new format on Monday, April 15, 1991. CTD will schedule the conversion of the UNICOS file systems independently of the conversion to the UNICOS 6.0 operating system.

As CTD gains experience with UNICOS 6.0, we will install other new system features and will announce them in future *Newsletter* articles. CTD is

especially interested in testing the UNICOS Data Migration Facility to alleviate disk storage constraints. The Data Migration Facility will allow CTD to regulate file system capacity by removing infrequently used files to offline media.

### CA-DISSPLA 11.0 METAFILE NAMES CHANGED IN CRAY UNICOS

In the February 1991 *Newsletter*, CTD announced that CA-Disspla Version 11.0 from Computer Associates (CA) was available for testing in Cray UNICOS. However, that article failed to mention that CA had changed the name of the POP metafiles produced by the Disspla input and output.

Table 1 lists the Disspla 11 POP input and output metafile names and compares them with the corresponding Disspla 10.0 names:

Table 1: Disspla 11 POP Input and Output Metafile Names		
	DISSPLA 11	DISSPLA 10
metafile output	popfil.dat	popfil
metafile input	metfil.dat	metfil

Because of these changes in Version 11.0, you must modify any references to the DISSPOP metafiles "popfil" or "metfil" in your Cray scripts or Network Queuing System (NQS) jobs. For example, when using the Cray hardcopy script to obtain hardcopy graphics output, you must change the name of the DISSPOP metafile from "popfil" to "popfil.dat."

### SUBMITTING, MONITORING, AND CONTROLLING CRAY NQS JOBS FROM UNIX WORKSTATIONS

CTD has developed a Unix workstation version of the **cray** command previously available with the Cray Supercomputer Gateway. The **cray** command permits users to submit, monitor, and control Network Queuing System (NQS) batch jobs from a Unix workstation.

At present, the **cray** command is available only from the CTD Sun achilles.ctd.anl.gov. After a one-month test period, CTD will make the source for the



**cray** command available to users of other Unix workstations.

Before using the **cray** command to submit, monitor, or control NQS batch jobs, you must use the following command to create an entry for your Unix workstation and your workstation userid in your Cray .rhosts file:

```
cray configure [-u cray_userid]
```

where "cray\_userid" is necessary if your Cray userid is different from your Unix workstation userid.

To invoke the **cray** command to submit an NQS batch job, enter:

```
cray submit nqsjob [options] [-u cray_userid]
```

where "nqsjob" (required) is the name of the file containing the NQS batch job, "options" is any UNICOS qsub command options, and "cray\_userid" is necessary if your Cray userid is different from your Unix workstation userid.

To invoke the **cray** command to monitor or control your NQS batch jobs, enter:

```
cray function [options] [-u cray_userid]
```

where "function" (required) is status, jstat, or kill and "options" is any options required or accepted by the corresponding UNICOS commands (qstat, jstat, or qdel). For a description of these functions, see Table 2.

Table 2: Cray Functions

FUNCTION	DESCRIPTION
status	Displays the UNICOS NQS queue status. The default is to show the status of all jobs in the NQS batch queues.
jstat	Displays information about active Cray jobs. The default is to show information about all active jobs.
kill	Deletes the UNICOS NQS job from the NQS queues. If the job has already begun, processing is terminated.

If you experience any difficulties with the Unix workstation **cray** command, call the User Services consultants at extension 2-5405.

## GRAPHICS NEWS

### XMOVIE AVAILABLE FOR CA-DISSPLA POSTPROCESSING

CTD has developed capabilities that will increase the usefulness of many existing CA-Disspla applications on the Cray and VAX systems. Now, Disspla users can create animations either interactively or in batch and can save those animations for repeated viewing on a Unix workstation running the X Window System.

The following example Disspla code demonstrates how you can create a series of frames with the X Window driver and Disspla 11.0 that will appear as a simple animation titled "Dave's Space Shuttle." (See "Using Computer Associates X Window Driver on the Cray" in the March 1991 Newsletter.)

Note that ANLXDRV and XWINDUMP are locally developed subroutines.

```
PROGRAM DEMO
CALL ANLXDRV(1.5, 1.0, 6.0, 4.5, 2, 2, -2)
DO 10 X=10,20
C The following two lines change the background color to
  blue.
CALL NEWCLR('BLUE')
CALL HWSPEC(1.0,'BACK')
CALL PAGE(10.,10.)
CALL NOBRDR
CALL SWISSM
CALL SHDCHR(90.,1,.002,1)
CALL HEIGHT(.3)
CALL HWSHD
CALL AREA2D(8.,5.5)
CALL NEWCLR('GOLD')
CALL HEADIN('Dave's Space Shuttle$',100,1.,1)
CALL XNAME('Minutes After Launch$',100)
CALL YNAME('Height (meters)$',100)
CALL NEWCLR('GREE')
CALL GRAF(0.,25.,100.,0.,25.,100.)
CALL RLVEC(X,X,X+.3,X+.3,3301)
CALL ENDDL(0)
C Dump the current displayed image to the file named
  demo_dump.bxwd.
CALL XWINDUMP('demo_dump.bxwd')
10 CONTINUE
END
```

To dump the images created in the graphics window to a file, issue the following call in your Disspla program after the plot has finished:

```
CALL XWINDUMP('FILENAME')
```

XWINDUMP will capture the current image displayed in the graphics window to the file named "FILENAME" on the same machine your Disspla program is running. Later calls to XWINDUMP will append the current image to the end of the specified file. To avoid concatenating two different sets of images, make sure the file named "FILENAME" is empty or does not exist prior to execution. If the file is not empty prior to execution, unexpected results may occur. Also, the file created may be very large depending on the number of images created and whether the plot contains color. To compress this file after the program has completed, use the compression program "pack" on the Cray or "compress," which is available on most Unix systems. Refer to the man pages (the online manual) on "pack" and "compress" for instructions on using these commands.

The file created by the routine XWINDUMP will be in "BXWD" (Big X Window Dump) format, the standard XWD file format with CTD extensions for multiple images. You can view your animation with a postprocessor named "xmovie."

Xmovie is an X program written by CTD for displaying the contents of a BXWD formatted file. Xmovie uses the standard X Window Library, Version 11.0, Release 4, with Athena widgets. Any workstation running this version of X with Athena widgets should be able to run xmovie. Figure 1 illustrates the use of xmovie to display the images dumped to the file demo\_dump.bxwd by the above program.

Xmovie provides a scrollbar and command buttons for viewing the images frame by frame or in an animation sequence. You can use the scrollbar to view a particular frame or to scroll through multiple frames, forward or backward, at your own pace. The "Animate" button displays all the images stored in the BXWD file in an ordered animation sequence. The "Quit" button exits from xmovie. The "Print" button dumps the current frame displayed to a PostScript file for later printing. The box next to the "Print" button shows the number of the frame currently displayed. To invoke xmovie, enter:

```
xmovie -in filename
```

Initially, xmovie will display a header frame with various job parameters identifying the job that created this file. Xmovie is available on CTD's Sun4 Server (Achilles) in the directory `/usr/local/src/X11R4/Common/contrib/clients/xmovie` or by contacting Dave Leibfritz at extension 2-6596. For detailed instructions on the use of xmovie, logon to Achilles and enter:

```
man xmovie
```

When you have created an animation that you would like to record on videotape, you can send your BXWD file to CTD. For instructions in Unix and UNICOS, enter:

```
man svfvideo
```

On the VAX 8700, enter:

```
help svfvideo
```

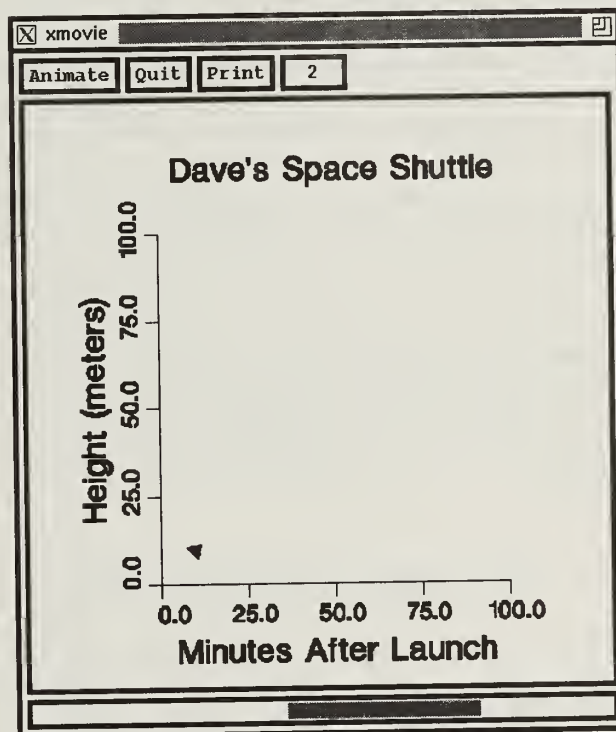


Figure 1: Xmovie Window Layout



## MANAGEMENT INFORMATION SYSTEMS

### STATUS OF THE INTEGRATED MATERIALS MANAGEMENT SYSTEM PROJECT

The Administrative Data Processing Oversight (ADPO) Committee has approved the Support Services Division (SSD) request to stop the Request for Proposal (RFP) for the Integrated Materials Management System (IMMS) evaluation temporarily. In the original RFP, a mandatory requirement was included to run the IMMS applications on the IBM 3084 computer. During the evaluation, SSD determined that several applications could potentially offer alternative solutions for IMMS. These applications run in a local area network (LAN) environment.

Currently, SSD and CTD are modifying the RFP to allow the IMMS application to run in either the IBM mainframe environment or in a LAN. The new RFP will also include a network compatibility statement that will need to be reviewed and approved by the Network Subcommittee of the Computing Policy Committee, the CTD Computer Network Section, and the IMMS Users Group. When all the suggested changes from the major organizations have been reviewed and the IMMS Users Group has approved the RFP, the Laboratory will reissue the RFP.

Because of the delay in the IMMS project, ADPO may redistribute some of the FY1991 funds originally allocated to the IMMS project to other administrative computing projects. Changes in the status of the project will appear in future *Newsletter* articles.

## TELECOMMUNICATIONS NEWS

### FDDI STATUS UPDATE

The Argonne Fiber Distributed Data Interface (FDDI) project has been identified as an important step to position ANL to take advantage of high-speed, fiber-optic networking. FDDI efforts have progressed steadily the last couple of months. CTD has tested FDDI interfaces for Sun and Silicon Graphics workstations. Within the year, we plan to test IBM and DEC interfaces. Initial tests show that

network file transfers run four to five times as fast over FDDI as over Ethernet. Some scientific visualization programs have been run over FDDI and have shown similar performance results. We are studying further tuning of network parameters, which promises further performance increases.

In the near future, FDDI will become the primary path for the Transmission Control Protocol/Internet Protocol (TCP/IP) users to access the Cray X-MP/14. Most users attached to the Laboratory-wide Ethernet through LANmark should notice no performance or functional changes. CTD will make this change to provide faster access to the Cray via divisional FDDI connections. CTD and the Environmental Assessment and Information Sciences Division are obtaining connections of this type. CTD has connected a Cisco multiprotocol router between the CTD FDDI ring and the Laboratory-wide Ethernet. Also, a Network System Corporation FDDI interface connects the Cray X-MP/14 to the CTD FDDI ring. The Sun TCP/IP interface to the Cray will remain in place and will serve as a backup path.

CTD has also made progress in implementing a Laboratory-wide FDDI network. CTD is developing specifications and a charging method, so that divisions can order routers and have CTD install, configure, and manage them. A fiber-optic cable will connect the offsite Building 900 networks to the Laboratory-wide FDDI network. Other divisions have indicated an interest in connecting local area networks to the FDDI backbone network. For information about this service, call the Computer Network Section at extension 2-4360.

CTD has submitted a proposal to request funding to interconnect 25 buildings with fiber-optic cable. CTD has expanded its proposal to permit a distributed video teleconferencing service. For information about this service, call the Computer Network Section at extension 2-4360.

### NEW ADDITIONS TO BITNET UNIVERSITY NETWORK

The BITnet University Network enhances collaborative efforts between Argonne scientists and scientists at universities and other organizations. You can use electronic mail through BITnet to share programs, data, and other information with other BITnet users.

Currently, the BITnet network comprises over 3,350 computers at over 1,210 sites. Since the last *Newsletter* article in February 1991, the following universities and organizations have joined BITnet:

Area for Scientific Research and Technology--Trieste  
 Adam Mickiewicz University--Poznan, Poland  
 Agricultural University--Wageningen, Netherlands  
 Brazilian Institute of Geography and Statistics--  
 Rio de Janeiro  
 Chilean Nuclear Energy Commission--Santiago  
 Coastal Higher Politechnical School--Guyaquil  
 Dallas County Community College District  
 Feng Chia University--Taiwan  
 Institute of Developing Economies--Tokyo  
 International Agency for Cancer Research--Lyon  
 Kagawa Medical School  
 National University of Cuyo--Argentina  
 Nicolaus Copernicus University--Torun, Poland  
 Okayama University of Science  
 Professional Academy--Heidenheim, Germany  
 Regional Center for Basic Research and Applications--  
 Bahia Blanca, Argentina  
 Regional Center of Research and Development--  
 Santa Fe, Argentina  
 School of International Affairs--Marseille  
 Slippery Rock University  
 Taiwan Telecommunications Laboratory  
 Taylor University  
 University of Concepcion--Chile  
 University of Electro-Communications--Japan  
 University of Portland--Oregon  
 University of Szczecin--Poland  
 University of Tarapaca--Chile  
 University of Tennessee at Martin  
 University of Wroclaw--Poland  
 Verona University  
 William Rainey Harper College

For a complete list of organizations in the BITnet network and their nodenames, enter (in CMS, the VAX 8700, or MVS Wylbur):

#### HELP BITNET NODES

## VAX/VMS NEWS

### TAPE UTILITY AVAILABLE ON ARGONNE CENTRAL VAX CLUSTER

CTD is making available TAPEUTIL, a locally developed menu-driven tape back-up and copy utility. You can use TAPEUTIL to back up many files or to copy large data files to tape. This utility provides a menu interface for users who do not want to learn the necessary Digital Command Language (DCL) commands (for example, **ALLOCATE**, **MOUNT**, **BACKUP**, and **COPY**) needed for tape back-up and copy procedures.

To invoke this utility, enter (at the VMS prompt):

```
$ TAPEUTIL
```

A menu will prompt you to choose the tape drive(s) that you want to use for the rest of the session. The next menu will prompt you to choose either a **COPY** or a **BACKUP** command (see Figure 2). Online **HELP** is also available by choosing the **Help** option.

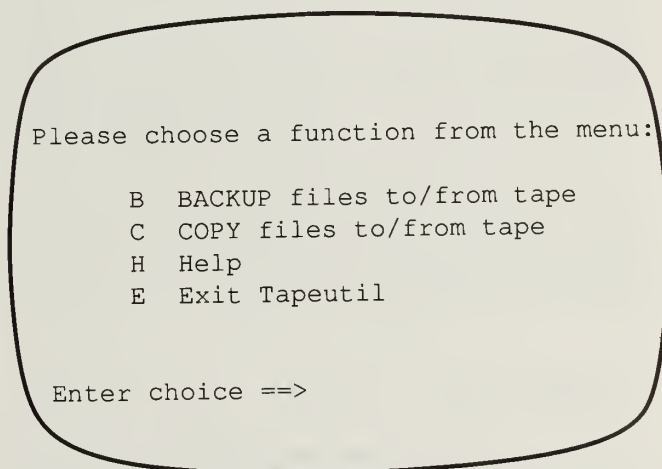


Figure 2: TAPEUTIL MENU

The rest of the utility is also menu driven. The program will prompt you for additional input as needed (including the volume serial number or the



tape label, if applicable). As an additional feature, TAPEUTIL checks every ten minutes to make sure that the tape has been mounted successfully.

To suggest improvements or additions, call the User Services consultants at extension 2-5405.

### **CENTRAL VAX CLUSTER (EMULEX) DISK RELIABILITY IMPROVEMENT**

After identifying a Seagate, Inc. manufacturing defect in the read/write head assembly in the older Emulex Model 821 disks, Emulex is replacing all six Model 821 disk units with newer Model 893 units for the central VAX cluster. We expect this replacement to end the recurrent seek errors that have resulted in several lengthy service interruptions and some unreadable data that required file restoration from tape.

In late 1989, after almost a year of service, seek errors occurred. By February 1990, errors had occurred on all the Emulex 821 disks. Initially, the maintenance service vendor, Bell Atlantic Business Systems Services (BABSS), and CTD implemented the prescribed cure for these errors. This cure was to reformat the disks, which required several lengthy service interruptions. In August 1990, the errors began to occur again. Emulex (the disk re-seller) called in their national support group, who decided to reformat the disks by using a different option. Emulex had been convinced that they had incorrectly prepared these disks for service. However, within two months of reformatting the disks, one of the disks was again affected by seek errors. Emulex analyzed this disk and traced the difficulty to a Seagate, Inc. manufacturing problem.

### **MODIFY UTILITY AVAILABLE**

The MODIFY utility is now available on the Argonne central VAX cluster. The MODIFY utility (1) operates on one or more text files, (2) removes horizontal tab characters and replaces them with blanks (detabbing), (3) changes variable length records to fixed length records, (4) truncates records, (5) searches for and replaces specified text strings, and (6) makes global changes in a single pass. This utility, written by Tom Worlton of the Intense Pulsed Neutron Source (IPNS) Division and distributed by the Digital Equipment Corporation User's Society (DECUS), is widely used at VAX installations.

To learn about the **MODIFY** command and its options, enter:

**\$ HELP MODIFY**

The PostScript file, SYS\_PUBLIC:MODIFY.PS, is an online document describing the **MODIFY** command that you can print and insert in your Digital Command Language (DCL) dictionary, which is part of the VAX/VMS document set.

## **BITS & BYTES**

### **NEW IBM IMPACT PRINTER REPLACES THE OLD IBM 1403 IMPACT PRINTER**

In June 1990, CTD installed a new IBM impact printer in Building 221, which will now replace the IBM 1403 impact printer. Although this printer is not an IBM 4248, IBM has specified that this printer is an IBM 4248 device type. Hence, all reference to it via JCL, etc. will be as an IBM 4248. In May 1991, after CTD has converted all of the remaining IBM 1403 applications to the new IBM impact printer, CTD will retire the IBM 1403 impact printer.

Because JES3 automatically sends all local output to the high-speed non-impact printer (currently the IBM 3800 laser printer) and the IBM 3800 laser printer only prints on one form, users who need to use a different form must select the impact printer. Users are using several methods to select the IBM 1403 impact printer now. When CTD has retired the IBM 1403 impact printer, CTD will still provide these methods. However, users who have a "CARRIAGE=name" parameter coded in a `//*FORMAT` statement will have to change this parameter to an "FCB=name" parameter (see Table 3) or to eliminate it if it is "CARRIAGE=6LI/60LP" (the default form control). No other change is necessary.

CTD has implemented a queue on the Argonne central VAX cluster to print to the new printer. To send your file to the CTD impact printer, enter:

**\$ PRINT /QUEUE=4248 filespec**

For a detailed discussion of how to use VAX print queues for IBM printers and the available **PRINT** command options, see "Improved 3800 and Fiche

Queues Available" in the November 1990 *Newsletter*.

The impact printer default form is a lined 11"-by-14 7/8" (STANDARD) form. Now, the only print character set is the IBM TN character set that contains all uppercase and lowercase alphabetic characters, numerals, national characters (#, @, \*, \$), and special characters (superscripts, diacritical symbols, etc.). This print train contains all the print characters currently in use (PN and TN character sets), so users no longer need to request specifically either print train. If you have an application that requires a custom print train or some other standard character set, contact Computer Operations at extension 2-5437.

Some users at ANL have also required specialized carriage tapes for forms control to print on non-standard forms. CTD has established Forms Control Buffers (FCBs) for most of these existing special IBM 1403 carriage tapes. If there is a tape that we have not converted or you need a special application, call Computer Operations at extension 2-5437.

Table 3: New Forms Control Buffer Names

OBSOLETE CARRIAGE=	NEW FCB=	DESCRIPTION
6LI/60LP	STND	6 lines/inch, 60 lines/page (Default)
8LI/80LP	STD8	8 lines/inch, 80 lines/page
LBL35X1	LBL3	Labels (3.5" x 1")
LBL4X15	LBL4	Labels (4" x 1.5")

#### RECENTLY UPDATED AND PUBLISHED DOCUMENTS

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy):

#### Adobe Systems Incorporated Documents

The *PostScript Language Reference Manual* (0-201-18127-4) is a comprehensive handbook for programmers interested in interfacing existing applications programs to generate PostScript files or in creating applications in the PostScript language itself. The handbook begins with a discussion of basic ideas underlying PostScript and continues with a comprehensive presentation of the language, its graphics, and its font facilities. An additional chapter contains the semantics of every PostScript operator, organized in dictionary format. The manual concludes with four appendices, including one that provides detailed programming information for the Apple LaserWriter. This manual is a companion volume to the *PostScript Language Tutorial and Cookbook* (0-201-10179-3). This second edition (January 1991) manual supersedes *PostScript Language Reference Manual* (0-201-10174-2).

#### Computer Associates Documents

The *CA-DISSPLA Pocket Guide, Version 11.0* (QG99DS11P1S) is a compact reference that describes technical features and lists routine parameters for the Disspla Graphics Software package. It also includes several device-dependent routines as well as DISSPOP postprocessor commands and directives. The organization of the *Guide* is identical to the *CA-DISSPLA User's Manual*. This manual supersedes the *CA-DISSPLA Pocket Guide: Version 10.5* (QG 99DS 11PGS).

*CA-TELLAGRAF Menus Primer, Release 1.5* (QC99TG15MPS) provides an introduction to CA-Tellagraf Menus and defines many of the graphics terms and concepts that are used in both CA-Tellagraf Menus and CA-Tellagraf.

#### IBM Documents

*IBM MVS/370 Integrated Catalog Administration: Access Method Services Reference, Release 1.2* (GC-26-4051-2) is for catalog administrators and VSAM system programmers. This manual contains reference information about the access method services commands used to manipulate integrated catalog facility catalogs and VSAM datasets. It gives the syntax, a brief description, and examples of each access method services command used with integrated catalog facility catalogs and the objects cataloged in them. For information on the use of commands



related to integrated catalog facility catalog format and structure, see the *Catalog Administration Guide*. For information on the use of commands related to VSAM dataset format and structure, see the *VSAM Administration Guide*.

The *IBM Virtual Machine/Extended Architecture System Product VM/XA SP, Release 1 and Release 2: CMS Primer* (SC23-0368-0) teaches you how to do your work by using the Virtual Machine/Extended Architecture System Product (VM/XA SP) system and a display terminal.

The *IBM Virtual Machine/Extended Architecture System Product VM/XA SP, Release 1 and Release 2: CMS Primer Summary of Commands* (SC23-0421-0) is a card that summarizes all of the commands presented in the *IBM Virtual Machine/Extended Architecture System Product VM/XA SP, Release 1 and Release 2: CMS Primer*, arranged by chapter and page number.

The *IBM Virtual Machine/Extended Architecture System Product VM/XA SP, Release 1 and Release 2: CMS User's Guide* (SC23-0356-0) describes the interactive facilities of CMS and VM/XA SP and includes examples showing you how to use CMS and selected functions of VM/XA SP. This manual is for the general user of the Conversational Monitor System (CMS) running under the Virtual Machine/Extended Architecture System Product (VM/XA SP).

The *IBM Virtual Machine/Extended Architecture System Product VM/XA SP, Release 1 and Release 2: EXEC 2 Reference* (SC23-0361-0) defines the EXEC 2 language. It is to be used primarily as a reference manual; it contains all of the formats, syntax rules, and descriptions of the arguments for EXEC 2 statements.

The *IBM Virtual Machine/Extended Architecture System Product VM/XA SP, Release 1 and Release 2: System Product Editor Command and Macro Reference* (SC23-0372-0) contains all of the command formats, syntax rules, and operand and option descriptions for the XEDIT command and XEDIT subcommands and macros.

The *IBM Virtual Machine/Extended Architecture System Product VM/XA SP, Release 1 and Release 2: System Product Editor User's Guide* (SC23-0373-0) gives you a working knowledge of the System Product editor (also called XEDIT). The

first three chapters are for data processing novices. The last four chapters are for new users who have mastered the fundamentals and for data processing professionals.

The *IBM Virtual Machine/Extended Architecture System Product VM/XA SP, Release 1 and Release 2: System Product Interpreter Reference* (SC23-0374-0) describes the Virtual Machine/Extended Architecture System Product (VM/XA SP) System Product Interpreter and the Restructured EXtended eXecutor (REXX) language. This manual includes the use and syntax of the language and explains how the interpreter "interprets" the REXX language as a program is executing. This manual is for experienced programmers, particularly those who have used another high-level language (for example, PL/I, Algol, or Pascal).

The *IBM Virtual Machine/Extended Architecture System Product VM/XA SP, Release 1 and Release 2: System Product Interpreter User's Guide* (SC23-0375-0) describes the programming language called the Restructured EXtended eXecutor (REXX) language. This manual also describes how the System Product Interpreter processes or "interprets" the REXX language. This manual is for beginners and programmers who have not used a "structured" language before.

The *IBM Virtual Machine/Extended Architecture System Product VM/XA SP, Release 2: CMS Command Reference* (SC23-0354-1) describes the command formats, syntax rules, and operand and option descriptions for the Virtual Machine/Extended Architecture System Product (VM/XA SP) CMS commands. This manual is for anyone who uses CMS commands.

The *IBM Virtual Machine/Extended Architecture System Product VM/XA SP, Release 2: CP Command Reference* (SC23-0358-1) describes the command formats, syntax rules, operands, and options for the Virtual Machine/Extended Architecture System Product (VM/XA SP) control program (CP) commands. This manual is for anyone who uses CP commands.

The *IBM Virtual Machine/Extended Architecture System Product VM/XA SP, Release 2: System Messages and Codes Reference* (SC23-0376-1) lists and explains the messages and codes that the Virtual Machine/Extended Architecture System Product

(VM/XA SP) issues. It also recommends actions a user can take in response to the message or code received. This manual is for any user of VM/XA SP who wants information about the codes and messages the system issues.

### **NCSA Software Tools Group Documents**

*NCSA X DataSlice for the X Window System, Version 1.0* (September 1989) explains how you should install and invoke NCSA X DataSlice, describes the basic file formats used in NCSA X DataSlice, describes options available in the Planes Along Axes window, outlines the options available in the Arbitrary Planes window, outlines the options available in the Cartesian Dicer window, and explains the procedures for loading and animating a saved 8-bit Raster image and processing a scientific dataset.

*NCSA X Image for the X Window System, Version 1.0* (November 1989) describes the basic file formats used in NCSA X Image, explains the various data display options provided by NCSA X Image, describes palettes as they are used in NCSA X Image, and discusses the Animate feature of NCSA X Image.

### **University of Chicago Documents**

*The University of Chicago Agreements with Personal Computer Vendors* (March 7, 1991) contains the latest lists of personal desktop computer discounts available through the University of Chicago to Argonne employees for both personal and Laboratory purchases. This revised price list supersedes the price list of February 4, 1991.

Documentation costs for vendor-supplied user manuals continue to rise. To address the increased costs of specific vendor binders, where cost effective, CTD has replaced vendor manual binders with a generic-type binder that may cost as little as 20 percent of a vendor-supplied binder. These generic 8 1/2"-by-11" binders are available with 1-inch, 1.5-inch, 2-inch, and 3-inch spines at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting them).

### **ERRATUM: WORKLOAD STATISTICS**

In the March 1991 *Newsletter*, we inadvertently published 1990 figures for the number of enrolled users active during the month and for the interactive and batch use in the "Workload Statistics (December 21, 1990 through January 30, 1991)." We regret any confusion that this error may have caused.

The entire January 1991 "Number of Enrolled Users" section and the entire January 1991 "Interactive and Batch Use" section follow:



## NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	END OF MONTH	ACTIVE DURING MONTH
CMS	1,236	1,241	452
Wylbur	1,672	1,671	352
MVS TSO	57	57	18
CICS	2,197	2,227	133
MVS Batch	2,197	2,227	686
VAX/VMS	644	740	379
Cray	340	345	129
All Systems	2,197	2,227	1,037

## INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				SESSION TIME (HRS)	CPU TIME (HRS)
	PRIME	NIGHT	WEEKEND	TOTAL		
INTERACTIVE						
CMS	11,938	2,860	4,133	18,931	50,182.0	117.61
Wylbur	7,225	241	559	8,025	9,014.0	6.90
MVS TSO	272	7	6	285	405.0	1.20
CICS	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
VAX/VMS	20,227	3,116	3,242	26,585	20,381.0	149.75
Cray	2,061	215	399	2,675	1,068.5	6.97
IBM BATCH						
Class U	9,159	1,946	2,088	13,193	n.a.	50.73
Class W	17,874	2,734	1,549	22,157	n.a.	150.02
Class X	0	695	37	732	n.a.	38.58
Class Y	0	0	487	487	n.a.	20.75
Nonmain	16,710	2,781	3,020	22,511	n.a.	0.00
Total	43,743	8,156	7,184	59,080	n.a.	260.08
CRAY BATCH						
u	2,061	215	399	2,675	n.a.	19.56
w	3,044	314	516	3,874	n.a.	217.98
x	222	242	204	668	n.a.	183.66
y	4,462	1,223	2,546	8,231	n.a.	267.45
Total	9,789	1,994	3,665	15,448	n.a.	688.65
VMS BATCH						
W BATCH	1,414	819	370	2,603	n.a.	179.06
X BATCH	51	60	19	130	n.a.	128.94
Y BATCH	11	4	98	113	n.a.	211.04
Total	1,476	883	487	2,846	n.a.	519.04

## USERS GROUP HIGHLIGHTS

MINUTES OF COMPUTER USERS GROUP  
MEETING HELD MARCH 5, 1991

Cy Adams (Reactor Analysis) opened the meeting for Dotti Bingham (Environmental Assessment and Information Sciences) at 3:04 p.m.

**Demonstration of Video Recording Capability with Disspla.** Dave Leibfritz (Computing and Telecommunications) and Fred Dech (Computing and Telecommunications) showed a videotape containing several sequences of animation produced by various people at the Laboratory to demonstrate local video recording capabilities for Disspla. The procedure uses the X Window driver in Disspla 11 and is started through local driver calls (see "New Visualization Video Recording Services Available" in the March 1991 *Newsletter*). The production is a batch process, but you can view the animation file in an X Window session on a Unix workstation with the xmovie program. (See "Xmovie Available for

CA-Disspla Postprocessing" in this *Newsletter*.) The recording process allows users to interact with visualization staff to determine the rate of frame recording. New users will benefit from working with Fred Dech and determining the playback rate desired to present the data recorded most effectively. For further help, "man" pages are available.

**Installation of VMS 5.4 on the VAX 8700.**

Rich Raffenetti (Computing and Telecommunications) reported on the plans for installing VAX/VMS 5.4 on the VAX 8700 computer and the current usage and cluster upgrade plans. Last year, the usage of the VAX cluster increased. CTD has installed new software: TAGM (a Tellagraf menu system that makes it possible to produce graphics more easily and quicker), SCA (a language-sensitive source code analyzer), new Unix emulation tools, MODIFY (a data stream editor), TAPEUTIL (with tools for tape and disk copying and back-up), IMSL 1.1, and EISPACK3 (with single, double, and gfloat-ing library versions). Also, the X Window System serves the Digital Equipment Corporation network (DECnet) and the Transmission Control Protocol/Internet Protocol (TCP/IP). The X Window System

is available in ANSYS, the Statistical Analysis System (SAS), Disspla/Tellagraf, the DEC Extensible VAX Editor (EVE), the DEC Language Sensitive Editor (LSE), and DEC CASE tools (such as LSE, SCA, CMS, and the Symbolic Debugger). There is also a set of DEC utilities (including mail, a clock, notepad, calculator, cardfiler, and paint program).

Disk space continues to be scarce, but CTD is purchasing an additional nine gigabytes, giving about 75 to 80 percent more space. The Argonne Information Management (AIM) System will use about four gigabytes of the new space. CTD has contacted selected users to determine if CTD can provide help to reduce the amount of space users need. The new TAPEUTIL tools are available, as well as FSANALYZE to analyze the use of disk space. Because of user cooperation, a significant amount of space has been made available for general use.

CTD plans to install VMS 5.4-1A on or about April 6, 1991. This installation will allow enhanced queue handling and the VAX 6410 being added to the cluster. Also, there are X Window System improvements, EVE editor enhancements, Disspla PostScript, and password screening. HELP V54 will allow users to view the enhancements in the new system.

The password screening feature initiated a discussion among the users about the way it would be handled. The system checks any new password against a dictionary; if a match is found, the system rejects the password. A user's history of password usage is kept. After the sixtieth password change in a year, the VAX generates a password for the user. The user may not reuse a password within a year. Some users felt this would inhibit productive work being performed and would lead to more passwords being written down. Someone suggested that the system should be as close as possible to the one currently on the Cray and IBM systems. To understand the implications of such a system, someone requested that the technical capabilities of the password system be more fully explained at the next meeting and that a presentation be made on how this fits with the current computer protection policy of the Laboratory.

Rich described the VAX cluster configuration after the installation of a VAX 6410 and reviewed the future VAX/VMS issues under investigation

(including the OSF/Motif graphical user interface, POSIX and X/Open interface standards, Open Systems Interconnection (OSI) network standards, and Network File System (NFS) client service with UNICOS 6 on the Cray.

**Cray Issues.** Doug Engert (Computing and Telecommunications) reported on several Cray related issues. Recently, CTD has encountered intermittent disk difficulties. The operating system reported no hard errors. However, users began noticing intermittent incorrect failures. After much searching, Cray has traced the difficulty to a bad spindle. After Cray replaced the spindle, the system worked fine. When users experience difficulties with the system, they should notify Operations at extension 2-5421.

UNICOS 6.0 is here, and CTD is readying it for installation during March or April 1991. This version includes several enhancements, including a new version of the mathematical libraries that includes scatter/gather and produces more accurate results. There is also an implicit foreign data conversion process to enable better transfer of files from other systems, compressed executables for better use of space, the ability to do file transfer protocol (FTP) transfers in the background, restartable "core" files, X Window 11.4 availability, NFS 4.0, a new file system structure, longer file names, symbolic links, migration to the MVS station, better swap capabilities, TCP/IP improvements, and OSI. CTD will make users aware of the testing and production dates.

CTD has reorganized the Cray disks to give added space in the systems that are most used. The /n2 file system was getting full, so CTD increased it to 4.78 gigabytes (50 percent increase). CTD has increased the /n1 file system to 3.98 gigabytes (4 percent), has decreased the /s1 file system to 2.7 gigabytes (14 percent), and has reduced the /t1 file system to 3.66 gigabytes, since no one has been using the /t1 file system capabilities. Now, /t1 is being used as /s1/scr.

In response to previous user suggestions about job scheduling, CTD has changed the time limits for the u1 and w1 job queues from 30 seconds to 2 minutes. No user changes are necessary. If the job fits the new limits, it will run in the class.

The negotiations between ANL and the vendor for increased memory on the Cray are ongoing.



When the negotiations are finished, there will be about two days of Cray downtime while Cray installs and checks the memory. At the earliest, this downtime will be in mid-April 1991.

**FDDI Becomes Default Link to the Cray.** Tim Kuhfuss (Computing and Telecommunications) reported on the Laboratory-wide connections to the Cray. Currently, the primary connection is through Sungate, with a secondary connection through the Fiber Distributed Data Interface (FDDI) connection. The primary connection will be from the Laboratory-wide Ethernet through the FDDI to the Cray, with Sungate as a secondary connection (see "FDDI Status Update" in this *Newsletter*).

**Computing Policy Committee Meeting Report.** Cy Adams (Reactor Analysis) read a report from Dotti Bingaman on the most recent Computing Policy Committee (CPC) meeting. The CPC met on February 11, 1991. Dave Weber (Computing and Telecommunications) summarized CTD utilization and recovery data for FY1986 through FY1991. Monthly recovery for January 1991 exceeded the CTD break-even point of \$730,000 by approximately \$10,000. All systems were well used.

Larry Amiot (Computing and Telecommunications) reviewed networking during 1990. He described the ANL involvement in the Energy Sciences network (ESnet), the Consortium for Institutional Cooperation network (CICnet), the National Science Foundation network (NSFnet), and the NETIllinois networks and our work to comply with GOSIP standards. CTD is installing video conferencing for ESnet and the New Production Reactor program. Routed FDDI is operational. CTD has installed the FDDI ring, and Environmental Assessment and Information Sciences has ordered the equipment for the offsite facility. CTD plans external network connections. The Network Managers Group is documenting network change procedures and is developing routed networks. The CPC must resolve the issues of how Laboratory-wide network costs are funded and how to deal with new personal computer local area network protocols that may affect the Laboratory-wide network. Also, CTD needs to develop an integrated FDDI/Video fiber-optic cable plan.

Dave Weber introduced a proposal to transfer the Connection Machine (CM-2) from the Advanced Computing Research Facility to CTD. The current configuration of the CM-2 is 16,384 processors with 8 kilobytes of memory per processor, no disk storage, a 32-bit floating point, and a peak performance of 14 megaflops (compared to 20-40 megaflops for the Cray). Lack of 64-bit floating-point processors results in poor floating-point performance. Minimal memory per processor forces small applications and precludes multiprocessing. No local disks means poor input/output (I/O) performance and prevents multiprocessing. Recommended upgrades are (1) to install 64-bit floating-point hardware to increase peak performance, (2) to obtain a 20 gigabyte disk subsystem to permit local datasets, and (3) to increase memory to 32 kilobytes per processor to permit larger applications and multiprocessing. The monthly incremental cost to CTD for operating and upgrading the CM-2 is estimated at \$87,000. A subcommittee will be formed to study this proposal.

Cy reported that Dotti was retiring. The next meeting will have a new CUG chairperson, who has not yet been selected.

The CUG meeting adjourned at 4:23 p.m.

Ken Miles, CUG Secretary

#### **MINUTES OF MACINTOSH USERS GROUP MEETING HELD MARCH 13, 1991**

Bob Kampwirth (Materials Science) opened the meeting at 11:05 p.m.

The topic of the April 1991 meeting will be communications between platforms, especially between the Apple Macintosh and the disk operating system (DOS). Denise Daniels (Apple Corporation) briefly discussed a tentative agenda for this meeting (including Apple File Exchange, MacLink Plus, DOS Mounter-type programs, SoftPC-type emulations, Apple Macintosh-Internet-DOS transfers, and possibly Apple Macintosh-Unix interchanges). She also stated that System 7 is still on schedule. On May 13, 1991, beta sites will receive the new operating system. In June 1991, the general release will be available.

Lee Wagar (Graphic Arts) reported that Graphic Arts is being considered as a beta site for the Xerox

DocuTech Production Publisher, which would give computer users LocalTalk access to a device that provides multiple copies of PostScript files at 600 dots per inch and 135 pages per minute. Among other things, the machine is a large duplicator. She also said that there is an infected (nVIR A) copy of the computer game TETRIS making the rounds onsite.

Jim Goeing and Meg Kay (National Instruments) presented an overview and demonstration of LabView 2.1.1, a data acquisition and instrument control product. LabView permits a user to build a virtual instrument by assembling a diagram of an application with icons representing executable blocks of code. The user controls and reads real instruments by manipulating the instrument panel on the monitor. The demonstration included (1) acquiring an audio signal from a compact disk (CD) via an audio board and a Digital Signal Processing card containing a second processor, (2) manipulating the signal in real time on a virtual instrument panel built to resemble a graphic equalizer, and (3) comparing the digital-to-analog sound from LabView with the real sound from the CD. The second processor permitted the near real-time operation, doing 33 megaflops with 32-bit input/output (I/O).

The current version of LabView is 2.1.1. The upgrade from Version 2.1 is free, and the upgrade from Version 2.0 is \$195. For an overview of the new features of Version 2.1.1, contact National

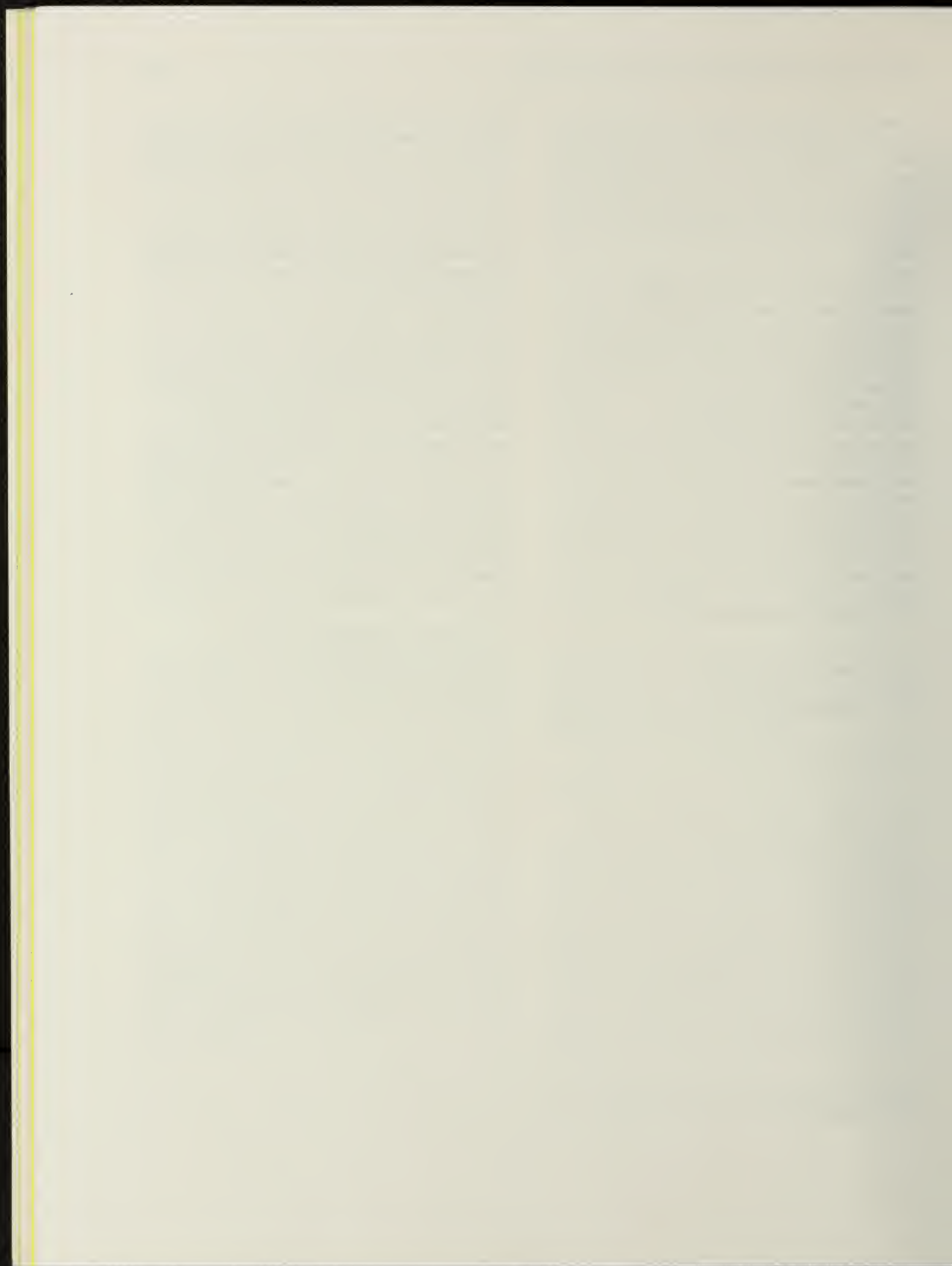
Instruments at (512) 794-8411. There is a runtime version of LabView (available for one-fourth the cost of the full program) that will allow users to operate, but not alter, an existing virtual instrument. A Chicago LabView Users Group will be available within the next two months. There will also be a technical seminar at the end of April 1991 in Chicago. Presently, there are about 50 LabView owners at Argonne, a list that might be made available if there is enough interest.

The Apple Macintosh Users Group normally meets the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee Wagar (Graphic Arts), Jim Lewellen (Computing and Telecommunications), or Ralph Leonard (Chemical Technology) for further meeting information. Lee Wagar sends the meeting announcements with QuickMail or E-mail, when possible, and with paper to those who have no electronic mail capabilities. If you have an electronic mail address and are not receiving an electronic meeting announcement, contact Lee Wagar at extension 2-5603 or via QuickMail.

The meeting adjourned at 12:30 p.m.

Lee Wagar, Acting Macintosh Users Group Secretary





# WORKLOAD STATISTICS (JANUARY 31 THROUGH FEBRUARY 27, 1991)

## NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	END OF MONTH	ACTIVE DURING MONTH
CMS	1,241	1,234	450
Wylbur	1,671	1,674	349
MVS TSO	57	57	18
CICS	2,227	2,242	142
MVS Batch	2,227	2,242	670
VAX/VMS	*	*	405
Cray	345	351	124
All Systems	2,227	2,242	1,029

## INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				SESSION TIME (HRS)	CPU TIME (HRS)
	PRIME	NIGHT	WEEKEND	TOTAL		
<b>INTERACTIVE</b>						
CMS	10,985	2,654	1,480	15,119	34,990.4	110.93
Wylbur	6,064	209	295	6,568	6,850.0	6.04
MVS TSO	239	5	0	244	312.8	0.71
CICS	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
VAX/VMS	19,527	400	2,234	22,161	29,545.7	138.09
Cray	1,779	284	213	2,276	1,088.2	12.36
<b>IBM BATCH</b>						
Class U	8,367	1,719	954	11,040	n.a.	22.84
Class W	15,937	2,602	755	19,294	n.a.	104.95
Class X	0	778	24	802	n.a.	41.88
Class Y	0	11	291	302	n.a.	41.50
Nonmain	15,218	1,816	1,260	18,294	n.a.	0.00
Total	39,522	6,926	3,284	49,732	n.a.	211.17
<b>CRAY BATCH</b>						
u	1,779	284	213	2,276	n.a.	19.95
w	2,046	334	271	2,651	n.a.	168.63
x	225	203	147	575	n.a.	161.82
y	3,140	1,338	1,277	5,755	n.a.	160.33
Total	7,190	2,159	1,908	11,257	n.a.	510.73
<b>VMS BATCH</b>						
W BATCH	1,002	400	126	1,528	n.a.	127.36
X BATCH	37	28	6	71	n.a.	150.04
Y BATCH	2	0	17	19	n.a.	29.67
Total	1,041	428	149	1,618	n.a.	307.07

## INPUT/OUTPUT

Lines Printed	
Local	53,998,665
Remote	66,548,153
Fiche	32,144,523
Cards Punched-Local Only	19,256
Tape Mounts	7,282
Microfiche Developed	4,015
Microfiche Frames Developed	697,499

## GRAPHICS

	# OF JOBS	# OF FRAMES
CalComp Jobs	58	n.a.
Matrix 35mm Color	10	22
Matrix-8 x 10	3	3
Matrix-Negative	0	0
FR80 Film Plots		
35mm Black/White/Unsprocketed	0	0
35mm Black/White/Sprocketed	0	0
35mm Color	0	0
16mm Black/White/Sprocketed	0	0
16mm Color	0	0

## DATA MANAGEMENT

Tapes Stored	24,546
New Tapes Saved	219
Tapes Released	857
Datasets Exported to Tape	1,912
Datasets Imported from Tape	576

\* This number is not available at this time.

n.a. = not applicable



AVAILABILITY STATISTICS, BY MACHINE (JANUARY 31 THROUGH FEBRUARY 27, 1991)

	Monthly Totals	Hardware	Scheduled Software	Other	Hardware	Unscheduled Software	Other
<b>CMS</b>							
<i>All Shifts</i>							
Interruptions	13.00	3.00	5.00		5.00		
Hrs Unavailable	19.76	2.30	5.61		11.85		
MTF/Unscheduled	130.44				130.44		
<i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i>							
Interruptions	4.00				4.00		
Hrs Unavailable	7.93				7.93		
MTF/Unscheduled	58.01				58.01		
<b>NYLBR</b>							
<i>All Shifts</i>							
Interruptions	11.00	2.00	5.00		4.00		
Hrs Unavailable	13.50	0.76	3.75		8.98		
MTF/Unscheduled	164.62				164.62		
<i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i>							
Interruptions	2.00				2.00		
Hrs Unavailable	5.05				5.05		
MTF/Unscheduled	117.47				117.47		
<b>MVS TSO</b>							
<i>All Shifts</i>							
Interruptions	11.00	2.00	5.00		4.00		
Hrs Unavailable	13.50	0.76	3.75		8.98		
MTF/Unscheduled	164.62				164.62		
<i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i>							
Interruptions	2.00				2.00		
Hrs Unavailable	5.05				5.05		
MTF/Unscheduled	117.47				117.47		
<b>JES3</b>							
<i>All Shifts</i>							
Interruptions	11.00	2.00	5.00		4.00		
Hrs Unavailable	12.71	0.60	3.33		8.78		
MTF/Unscheduled	164.82				164.82		
<i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i>							
Interruptions	2.00				2.00		
Hrs Unavailable	4.96				4.96		
MTF/Unscheduled	117.51				117.51		
<b>CICS</b>							
<i>All Shifts</i>							
Interruptions	1.00				1.00		
Hrs Unavailable	1.76				1.76		
MTF/Unscheduled	670.23				670.23		
<i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i>							
Interruptions	1.00				1.00		
Hrs Unavailable	1.76				1.76		
MTF/Unscheduled	238.23				238.23		
<b>VAX/VMS (VAX 8700)</b>							
<i>All Shifts</i>							
Interruptions	2.00	1.00	1.00				
Hrs Unavailable	4.50	3.00	1.50				
MTF/Unscheduled							
<i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i>							
Interruptions							
Hrs Unavailable							
MTF/Unscheduled							
<b>CRAY</b>							
<i>All Shifts</i>							
Interruptions	18.00	5.00	2.00	1.00	9.00		1.00
Hrs Unavailable	34.61	13.96	2.71	4.25	13.58		0.10
MTF/Unscheduled	63.73				70.82		
<i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i>							
Interruptions	8.00				7.00		1.00
Hrs Unavailable	8.90				8.80		0.10
MTF/Unscheduled	28.88				33.01		

# COMPUTING CENTER USE IN DOLLARS BY COST CENTER (JANUARY 31 THROUGH FEBRUARY 27, 1991)

CC	CCHNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
ADVANCED PHOTON SOURCE							
130	ADVANCED PHOTON SOURCE DIV	\$159	\$365	\$0	\$349	\$102	\$975
272	ADVANCED PHOTON SOURCE	\$81	\$0	\$0	\$18	\$57	\$156
340	APS DIVISION MANAGEMENT	\$24	\$0	\$0	\$0	\$40	\$64
341	APS ACCELERATOR PHYSICS	\$235	\$4,710	\$0	\$1,332	\$195	\$6,473
342	APS DIAGNOSTICS	\$0	\$14	\$0	\$0	\$0	\$14
343	APS LINAC	\$0	\$160	\$0	\$0	\$131	\$290
344	APS RF	\$3	\$0	\$0	\$0	\$0	\$3
345	APS VACUUM	\$8	\$1,364	\$0	\$0	\$38	\$1,418
347	APS CONTROLS	\$44	\$2	\$0	\$0	\$20	\$66
348	APS MAGNETS	\$54	\$33	\$0	\$41	\$193	\$321
349	APS POWER SUPPLIES	\$29	\$0	\$0	\$0	\$15	\$44
350	APS DIVISION MANAGEMENT	\$14	\$0	\$0	\$0	\$11	\$25
351	APS INSERTION DEVICES	\$46	\$121	\$0	\$20	\$15	\$202
352	APS BEAM LINE FRONT ENDS	\$801	\$1,943	\$0	\$214	\$2,472	\$5,431
353	APS BEAM LINE INSTRUMENTATION	\$14	\$143	\$0	\$30	\$79	\$267
360	APS CONVENTIONAL FACILITIES	\$20	\$0	\$0	\$61	\$24	\$81
361	APS PROJECT DIRECTION	\$35	\$0	\$0	\$2	\$0	\$37
362	APS MANAGEMENT GENERAL	\$18	\$0	\$0	\$0	\$0	\$18
SUBTOTAL		\$1,585	\$8,855	\$0	\$2,077	\$3,458	\$15,975
ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH							
110	BIO & MED RES DIV	\$1,686	\$813	\$83	\$1,066	\$1,262	\$4,909
125	TECHNOLOGY TRANSFER CENTER	\$44	\$0	\$0	\$0	\$112	\$156
149	ENVIRONMENTAL RESEARCH DIV	\$1,358	\$225	\$444	\$878	\$916	\$3,820
155	ENERGY SYSTEMS DIVISION	\$5,333	\$1,595	\$6,078	\$2,368	\$1,315	\$16,689
165	ENV ASSESS & INFO SCI DIV	\$3,254	\$6,113	\$8,373	\$880	\$4,163	\$22,783
174	ENER/ENV/BIO PROG DIR	\$10	\$0	\$0	\$4	\$101	\$116
246	ES-NAT'L ENERGY SOFTWARE CTR	\$136	\$85	\$64	\$73	\$658	\$1,716
274	ENER/ENV/BIO RES PROG ADM	\$106	\$0	\$0	\$3	\$202	\$311
SUBTOTAL		\$11,928	\$8,830	\$15,041	\$5,972	\$8,729	\$50,500
ENGINEERING RESEARCH							
102	EBR-II PROJECT-ANL WEST	\$1,584	\$22	\$44	\$2,126	\$114	\$3,890
104	FUELS AND PROCESSES	\$1,093	\$20	\$11	\$141	\$155	\$1,421
107	CHEMICAL TECHNOLOGY DIVISION	\$550	\$347	\$0	\$866	\$450	\$2,213
112	REACTOR ENGINEERING	\$11,847	\$851	\$10,944	\$5,361	\$3,268	\$32,270
114	MATLS & COMP TECH DIV	\$4,400	\$4,107	\$1,259	\$2,753	\$2,154	\$14,674
115	ENGINEERING PHYSICS DIVISION	\$4,684	\$1,437	\$4,013	\$2,780	\$1,676	\$14,589
116	REACTOR ANALYSIS	\$42,789	\$8,787	\$86,139	\$13,214	\$12,463	\$163,392
117	APPLIED PHYSICS-ANL WEST	\$3,909	\$11	\$6,552	\$153	\$375	\$11,000
118	REACTOR EXP & EXAM DIV	\$1,888	\$2,104	\$4	\$376	\$2,406	\$6,778
119	ANALYTICAL LABORATORY ANL-WES	\$0	\$0	\$0	\$0	\$100	\$100
171	ENGRG RES PROG DIR	\$3	\$0	\$0	\$0	\$106	\$108
197	SPECIAL PROJECTS OFFICE	\$346	\$24	\$0	\$21	\$150	\$541
211	ENGINEERING PHYSICS DIVISION	\$62	\$11	\$0	\$9	\$3,068	\$3,150
269	CHEM TECH DIV-ANALYTICAL CHEM	\$69	\$5	\$0	\$4	\$113	\$191
271	ENGRG RES PROG ADMIN	\$216	\$0	\$0	\$9	\$285	\$510
SUBTOTAL		\$73,440	\$17,724	\$108,966	\$27,814	\$26,884	\$254,829
PHYSICAL RESEARCH							
105	MATERIALS SCIENCE DIVISION	\$658	\$5,843	\$37,142	\$1,554	\$695	\$45,892
109	PHYSICS DIV	\$2,364	\$977	\$271	\$1,784	\$1,113	\$6,508
120	CHEMISTRY DIV	\$2,622	\$6,045	\$34,404	\$543	\$414	\$44,029
136	INT PULSE NEUT SOURCE PROG	\$142	\$772	\$13,084	\$483	\$202	\$14,683
137	HIGH ENERGY PHYSICS DIV	\$589	\$1,479	\$3,137	\$802	\$1,070	\$7,077
139	DIV OF EDUCATIONAL PROGRAMS	\$404	\$86	\$0	\$105	\$132	\$726
145	MATHEMATICS & COMPUTER SCI DI	\$139	\$39	\$595	\$3,776	\$4,620	\$9,170
146	CTD DIV - SCI APPL & RES	\$29	\$0	\$0	\$31	\$2	\$63
273	PHYSICAL RESEARCH PROGRAM ADM	\$74	\$0	\$0	\$27	\$146	\$247
SUBTOTAL		\$7,022	\$15,241	\$88,634	\$9,105	\$8,394	\$128,396
EXTERNAL							
751	FERMI NATIONAL LABORATORY	\$590	\$0	\$0	\$265	\$487	\$1,342
752	NAVY	\$13,247	\$0	\$0	\$1,623	\$7,390	\$22,260
753	MORGANTOWN ENERGY TECH CENTER	\$11	\$0	\$0	\$0	\$0	\$11
754	DEPARTMENT OF ENERGY AT ANL	\$2	\$6	\$0	\$6	\$0	\$14
760	ABBOTT LABORATORIES	\$8	\$0	\$52	\$0	\$0	\$60
763	GENERAL ELECTRIC COMPANY	\$0	\$1	\$0	\$0	\$0	\$1
765	WESTINGHOUSE HANFORD COMPANY	\$0	\$0	\$1	\$0	\$500	\$501
766	BECHTEL NATIONAL, INC.	\$0	\$227	\$5,328	\$182	\$1	\$5,738
775	SMITHSONIAN	\$0	\$0	\$0	\$0	\$3	\$3
777	UNIVERSITY OF CHICAGO AT ANL	\$34	\$0	\$0	\$151	\$0	\$185
778	ARGONNE CREDIT UNION	\$6	\$0	\$0	\$0	\$0	\$6
779	UNIVERSITY OF ILLINOIS AT CHI	\$6	\$0	\$0	\$0	\$0	\$6
780	NEW BRUNSWICK LABORATORY	\$11	\$0	\$0	\$0	\$0	\$11
781	STATE OF ILL. DEPT. MENTAL HE	\$0	\$0	\$0	\$0	\$8	\$8
782	PACKER ENGINEERING	\$3	\$41	\$0	\$10	\$0	\$54
783	WEST VALLEY NUCLEAR SERVICES	\$1,781	\$0	\$0	\$11	\$44	\$1,836
784	SUPERCONDUCTING SUPER COLLIDER LABS	\$6	\$254	\$221	\$2	\$0	\$482
SUBTOTAL		\$15,704	\$528	\$5,602	\$2,250	\$8,434	\$32,518



CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
OPERATIONS							
143	SUPP SERV DIV - ELEC DEPT	\$159	\$4	\$0	\$280	\$301	\$745
148	HUMAN RESOURCES-MEDICAL DEPT	\$744	\$0	\$0	\$71	\$345	\$1,160
150	SUPPORT SERV DIV - SPEC MATLS	\$172	\$0	\$0	\$27	\$153	\$352
161	TECH INFO SERVICES DEPT	\$532	\$13,699	\$0	\$1,797	\$972	\$17,000
201	OFFICE OF THE DIRECTOR	\$466	\$0	\$0	\$223	\$177	\$866
202	OFC OF CHIEF OPER OFCR	\$16	\$0	\$0	\$13	\$101	\$118
210	SUPP SERV DIV - CENT SHOPS	\$414	\$0	\$0	\$75	\$567	\$1,057
216	SUPPORT SERVICES DIVISION	\$200	\$0	\$0	\$47	\$108	\$355
222	PLANT FAC & SERV-LODGING FAC	\$0	\$0	\$0	\$0	\$100	\$100
232	SUPPORT SERV DIV - SECURITY	\$262	\$0	\$0	\$0	\$130	\$392
234	SUPP SERV DIV-HEALTH PHY	\$243	\$1	\$0	\$15	\$314	\$573
235	SUPP SERV DIV-ENV SAFE HEALTH	\$1,026	\$12	\$0	\$163	\$484	\$1,684
236	SUPPORT SERV DIV - FIRE DEPT	\$7	\$0	\$0	\$0	\$101	\$107
245	COMPUTING AND TELECOM DIV	\$16,337	\$0	\$0	\$3,404	\$2,687	\$22,429
247	COMP & TEL DIV - COM SERV	\$1,813	\$0	\$0	\$286	\$1,042	\$3,141
260	SUPP SERV DIV-GRAPHIC ARTS	\$255	\$214	\$0	\$54	\$208	\$731
265	ELECTRONIC PUBLISHING SERVICE	\$0	\$1	\$0	\$1	\$12	\$13
275	OFFICE OF PUBLIC AFFAIRS	\$515	\$0	\$0	\$99	\$170	\$745
276	OFC PUB AF - MOTN PIC UNIT	\$48	\$0	\$0	\$2	\$11	\$61
296	TELECOM COST/RECOVERY	\$0	\$0	\$0	\$65	\$0	\$65
315	SUPP SERV DIV-MATLS & SERV	\$2,364	\$0	\$0	\$955	\$365	\$3,684
316	PLANT FAC & SERV-VEH MAINT	\$0	\$0	\$0	\$0	\$171	\$171
317	PLANT FAC & SERV-DRIV&RIG SER	\$11	\$0	\$0	\$1	\$100	\$112
319	SUPP SERV DIV-TRAVEL OFC	\$3	\$0	\$0	\$42	\$100	\$145
322	SUPP SERV DIV-PROCUREMENT	\$40	\$1	\$0	\$2	\$108	\$151
333	QA, ENVIR & SAFETY OFC	\$114	\$1	\$0	\$28	\$216	\$359
336	SUPP SERV DIV - INSPECTION	\$12	\$0	\$0	\$0	\$2	\$13
400	OFC OF CHIEF FIN OFFICER	\$37,272	\$0	\$0	\$2,631	\$10,636	\$50,539
401	ACCOUNTING	\$0	\$0	\$0	\$81	\$100	\$181
402	OFC CHIEF FIN OFCR-DATA ENTRY	\$9	\$0	\$0	\$150	\$0	\$159
403	BUDGET OFFICE	\$75	\$0	\$0	\$0	\$356	\$431
410	HUMAN RESOURCES DEPARTMENT	\$10,706	\$0	\$0	\$1,051	\$1,570	\$13,327
412	AFFIRM ACTION PROGRAM	\$57	\$0	\$0	\$46	\$101	\$203
501	PLANT FAC & SERV-BLDG MAINT	\$33	\$0	\$0	\$45	\$184	\$262
502	PLANT FAC & SERV-INSTALLATION	\$20	\$0	\$0	\$2	\$136	\$157
503	PLANT FAC & SERV-GROUNDS	\$0	\$0	\$0	\$0	\$100	\$100
504	PLANT FAC & SERV-CUSTODIAL	\$3	\$0	\$0	\$0	\$100	\$103
505	PLANT FAC & SERV-WASTE MGMT O	\$62	\$0	\$0	\$55	\$101	\$218
506	PLANT FAC & SERV-PLANT MGR OF	\$452	\$0	\$0	\$6	\$338	\$795
510	PLANT FAC & SERV-UTILITY SYST	\$0	\$0	\$0	\$0	\$100	\$100
512	PLANT FAC & SERV-FAC PLNG/ENG	\$578	\$0	\$0	\$19	\$159	\$756
530	SITE MGRS OFC-ANL WEST	\$40	\$2	\$0	\$13	\$102	\$157
531	PERSONNEL-ANL WEST	\$145	\$0	\$0	\$70	\$100	\$315
532	SPECIAL MATLS-ANL WEST	\$786	\$0	\$0	\$151	\$249	\$1,185
533	ACCOUNTING-ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
534	PURCHASING-ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
535	SECURITY - ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
536	SAFETY STAFF-ANL WEST	\$131	\$0	\$0	\$0	\$102	\$234
537	INFORMATION SERVICE-ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
538	MATLS HANDLING-ANL WEST	\$86	\$0	\$0	\$19	\$100	\$204
548	ANL WEST GENERAL EXPENSE	\$126	\$0	\$0	\$55	\$0	\$181
550	COMPUTER APPL & SERV - ANL-W	\$97	\$0	\$0	\$14	\$101	\$212
551	RAD MONITORING-ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
554	MACHINE SHOP-ANL WEST	\$22	\$0	\$0	\$3	\$100	\$125
556	SITE ENGRG-ANL WEST	\$113	\$0	\$0	\$16	\$109	\$238
557	PLANT SERVICES-AW-SERVICE REQ	\$28	\$2	\$0	\$1	\$100	\$131
558	PLANT SERVICES-AW-FUNCTION	\$3	\$0	\$0	\$0	\$0	\$3
561	OFC OF QUALITY ASSURANCE - AW	\$3	\$0	\$0	\$0	\$101	\$104
SUBTOTAL		\$76,598	\$13,937	\$0	\$12,039	\$24,688	\$127,262
TOTAL		\$186,276	\$65,115	\$218,244	\$59,257	\$80,587	\$609,480

## COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	Onsite (Illinois)	Onsite (Idaho)	Offsite (Area Code 708)
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	n.a.	972-7273

Computer Callback Service 1-800-332-1478 (only within Illinois)

### CICS, CMS, Wylbur, and TSO Interactive Computing Services

IBM 3270 Protocol Converter	2-3270	n.a.	
1200 to 19.2K Bits Per Second (Onsite)			972-3270
1200 to 2400 Bits Per Second (Offsite)			972-3219
9600 to 19.2K Bits Per Second (Offsite)			
X.25 Terminal Multiplexor	2-2525	n.a.	
300 to 19.2K Bits Per Second (Onsite)			972-2525
1200 to 2400 Bits Per Second (Offsite)			972-2519
9600 to 19.2K Bits Per Second (Offsite)			n.a.
IBM 3174 Cluster Controller	2-3174	n.a.	
1,200 Bits Per Second Full-Duplex	2-2212	n.a.	972-2212
(Bell 212 and Hayes Compatible Modems)			
1,200 Bits Per Second Full-Duplex	2-7612	n.a.	972-7612
(Vadic 3400 Compatible Modems)	2-7603*	n.a.	972-7603*
300 Bits Per Second			

\* When using a 300 bits per second modem, you must use a capital "P" to logon.

### Batch Remote Job Entry Service

2,000 or 2,400 Bits Per Second	2-7989	n.a.	972-7989
(Bell 201A and 201C Compatible Modems)			
4,800 Bits Per Second	2-7573	n.a.	972-7573
(Bell 208B Compatible Modems)			

### Central DEC VAX 8700

1200 to 19.2K Bits Per Second (Onsite)	2-8700	n.a.	
1200 to 2400 Bits Per Second (Offsite)			972-8700
9600 to 19.2K Bits Per Second (Offsite)			972-8745

### Argonne TCP/IP Network

1200 to 19.2K Bits Per Second (Onsite)	2-5588	n.a.	
1200 to 2400 Bits Per Second (Offsite)			972-5588
9600 to 19.2K Bits Per Second (Offsite)			972-4726

### Argonne MFEnet Dial-Up

300 to 19.2K Bits Per Second	2-7920	n.a.	972-7920
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### Tymnet Commercial Packet-Switching Network

Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.

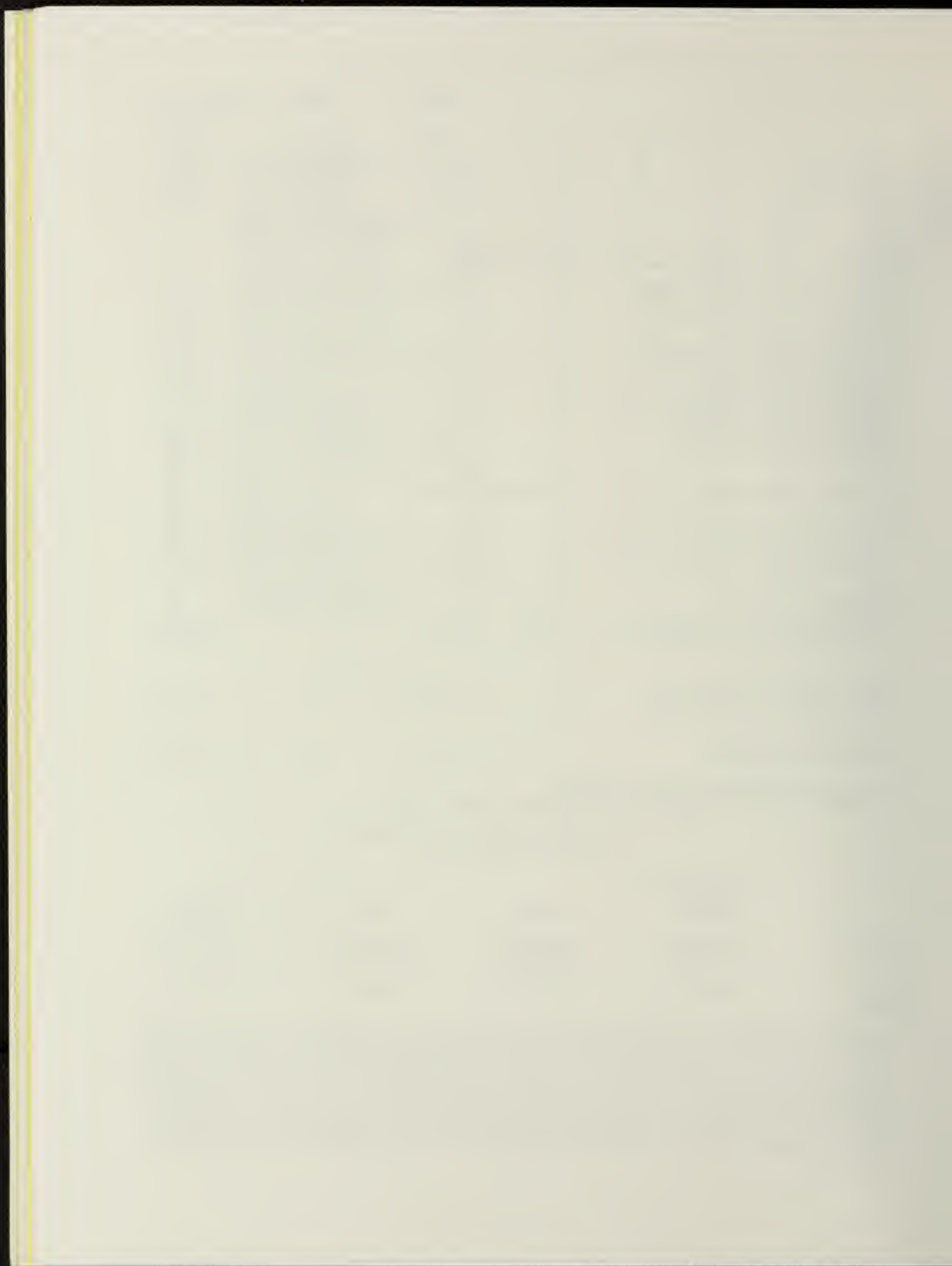
## COMPUTING CENTER SERVICE SCHEDULE

(All Times Are Central Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	VM/SP	VMS	MFEnet Gateway
Monday to Thursday	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

\*\* Except for the interruption of UNICOS from 4:00 a.m. until 8:00 a.m. on Mondays for maintenance, service continues uninterrupted past 4:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 3:00 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 3:00 p.m. before making plans that require the availability of a service the following morning.





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## COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering two seminars and one workshop. There is no charge for attending classes, unless otherwise indicated. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the class and notify attendees of any schedule changes. CTD will reschedule or cancel any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

### SAS: AN OVERVIEW OF STATISTICS, GRAPHICS, AND REPORTING CAPABILITIES

**Goal:** To learn about the various pieces of the SAS Software System available on the IBM MVS and CMS operating systems, on the VAX 8700 VMS operating system, and for IBM Personal Computers. To learn how you can use the available procedures to do your work (report writing to simple statistics to complex 3-D analytical, graphical output).

**Length of Seminar:** One hour

**Date and Time:** April 29, 1991 (Monday), 9:00 a.m. to 10:00 a.m.

**Location:** Building 221, Room A-261

**Instructor:** Mike Thommes

### TELLAGRAF: AN OVERVIEW OF ITS GRAPHICS CAPABILITIES

**Goal:** To learn the capabilities of the CA-Tellagraf interactive software that is capable of creating line, plot, bar, table, and word charts easily while retaining full control over the plot characteristics and data values.

**Length of Seminar:** One hour

**Date and Time:** April 29, 1991 (Monday), 2:00 p.m. to 3:00 p.m.

**Location:** Building 221, Room A-261

**Instructor:** Mike Thommes



## **CRAY X-MP FORTRAN VECTORIZATION WORKSHOP**

**Goals:** To optimize Fortran programs on the Cray X-MP/14 high-performance computer. Following a brief discussion of Cray X-MP architecture, vectorization, and optimization, the tools and techniques will be used on the programs of the workshop participants.

**Length of Workshop:** One 8-hour session

**Dates and Time:** April 30, 1991 (Tuesday), 9:00 a.m. to 5:00 p.m.

**Location:** Building 221, Room A-261

**Instructors:** Pete Bertoncini  
Tom Canfield  
Larry Rudsinski

## **COMPUTER-BASED TRAINING COURSES**

Currently, CTD offers one computer-based training course in CMS and five courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

### **IBM CBT Course**

(Enter SLFTEACH at the CMS prompt.)

**SLFTEACH** Introduction and Advanced Concepts of Xedit

### **DEC CBT Courses on the Central VAX 8700**

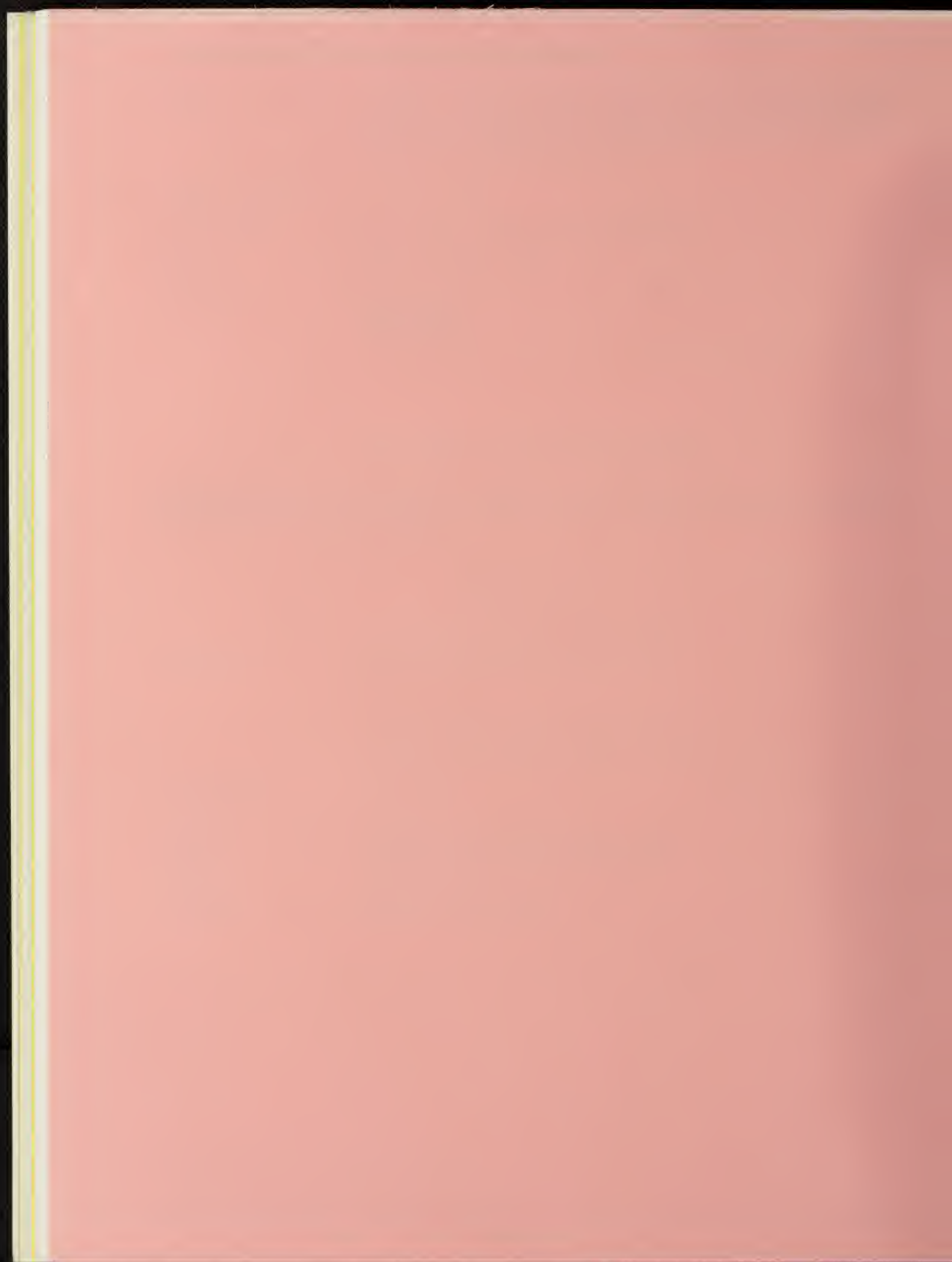
(Enter RUN "course name" at the DCL level.)

<b>Course Name</b>	<b>Course Title</b>
VMSCAI	Introduction to VAX/VMS
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers

To register for a class, call extension 2-5405.







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# ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division

VOLUME 22

NUMBER 5

MAY 1991

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Computing Center Classes

DEPOSITORY,

MAY 20 1991

UNIVERSITY OF ILLINOIS  
LIBRARY, CHAMPAIGN

**ES&H** "First Among Equals"  
Only you can do it !



# COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory

Building 221

Argonne, Illinois 60439-4822

FAX: 708-972-5983

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

		Room	Phone	Electronic Mail Address
Division Director	David Weber	A251	2-7155	B22788 AT ANLVM
Computer Protection Program Manager	Jean Troyer	A237	2-7440	B18216 AT ANLVM
Computing and Telecommunications Operations	Larry Amiot	B243	2-5432	B10523 AT ANLVM
Computer Network	Bob McMahon (Acting)	B239	2-7270	B17385 AT ANLVM
Data Communications	Linda Winkler (Acting)	B251	2-7236	B32357 AT ANLVM
Service Engineering	Paul Phillips	D118	2-4343	B36679 AT ANLVM
	Vern Tantillo	C112	2-4181	B06434 AT ANLVM
Computer Operations	Gary Schlesselman	A113	2-5437	B09819 AT ANLVM
Day and Weekend Operation	Bob Bilshausen	A134	2-5421	
Document Distribution Counter		A134		
Evening and Overnight Operation	Mike Monczynski	A134	2-5421	
Tape Librarian	Sandra Vasko	A134	2-7681	B18669 AT ANLVM
Systems Programming	Doug Engert	B231	2-5444	B17783 AT ANLVM
Telephone Services	Allen Winter	B247	2-2764	B07059 AT ANLVM
User Services	Fred Moszur	A121	2-7419	B27564 AT ANLVM
Computer Use Authorizations	Fran Carnaghi	A147	2-5425	B27596 AT ANLVM
Consultants		A139	2-5405	CONSULT AT ANLVM
Documentation Advice		A139	2-5405	CONSULT AT ANLVM
Education and Assistance	Pete Bertoncini (Acting)	E101	2-4827	B15013 AT ANLVM
Management Information Systems	Diane O'Brien	B151	2-7167	B26424 AT ANLVM
Financial Systems	Nick Moore	D239	2-8075	B31048 AT ANLVM
Human Resource Systems	Bob Hischer	B147	2-7272	B22639 AT ANLVM
Information and Production Services	Miriam Bretscher	B139	2-7252	B26187 AT ANLVM
Materials and Plant Systems	Rich Slade	B159	2-7329	B32848 AT ANLVM
Planning, Finance, and Administration	Mike Boxberger	A245	2-5638	B34540 AT ANLVM
Scientific Applications and Research	Charles Mueller	A231	2-7153	B11284 AT ANLVM

The Division operates a Cray X-MP/14 with UNICOS 5.1.8, a Sun 3/280 gateway, a central VAX cluster (a DEC VAX-11/750, a DEC VAX 8700, and a DEC VAX 8250) with VMS 5.3, an IBM 3084QX9, and three Hewlett-Packard 3000 minicomputers. Software on the IBM computers includes VM/SP CMS Release 5, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E), and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 708-972-5415.

The *Argonne Computing Newsletter* is published monthly by the Computing and Telecommunications Division, Argonne National Laboratory, Argonne, Illinois 60439; edited, prepared, and formatted by April Heiberger with CMS, Waterloo Script, and the Linotype L300P typesetter. This *Newsletter* was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

## COMPUTING COMMENTS

### CUTOVER DATE SET FOR CONVERSION TO VM/XA

CTD is nearing completion of the testing of the new Virtual Machine/Extended Architecture (VM/XA) operating system and has scheduled Saturday, May 18, 1991, as the cutover date for the move from Virtual Machine/System Product (VM/SP) to VM/XA. The VM machine will be down from 8:30 a.m. until 5:00 p.m., while CTD accomplishes the conversion. After the cutover, VM/XA will replace the VM/SP operating system on one half of the IBM 3084 hardware. The MVS/370 operating system will remain operational during the cutover on the other half of the IBM 3084 computer.

VM users will have a new default virtual machine size of 8 megabytes and will be able to increase memory size with the **DEFINE STORAGE** command up to 24 megabytes of memory. To reduce the likelihood of incompatibles and difficulties after the cutover, CTD will set the default machine mode to 370, which is similar to VM/SP operation. Users who require more than 8 megabytes of memory will have to change to XA mode to take advantage of the increased memory. This procedure is done with the **SET MACHINE** and **IPL** commands:

```
SET MACHINE XA
IPL CMSXA
```

There are some differences that may affect users with exec files that process responses from Control Program (CP) commands or programs that use privileged instructions. CTD has prepared migration hints developed during the test period that may be helpful in determining the impact of the conversion on you. These hints are on the PUBLIC 2 minidisk under the name **MIGRATE HINTS** and are accessible from both VM/SP and VM/XA user machines. To use **MIGRATE HINTS**, you must first **LINK** and **ACCESS** the PUBLIC 2 minidisk:

```
CP LINK PUBLIC 2 vaddr
ACCESS vaddr filemode
```

where "vaddr" is any unassigned virtual address and "filemode" is any unassigned filemode letter.

The XAMIGR exec is now available in VM/SP to help you determine which of your execs will work properly when the cutover occurs. You should invoke the XAMIGR tool to identify potentially troublesome commands now so that you will reduce the number of difficulties after the cutover. (See "Exec Writing Considerations for VM/XA" in the March 1991 *Newsletter*.)

CTD encourages users to obtain a user ID on VM/XA before the conversion and to test programs and execs before the May 18 conversion date. Limited amounts of free test time are available during normal working hours. To participate in the test, contact the User Services consultants (Building 221, Room A-139, extension 2-5405).

### COMPUTING CLASSES SCHEDULED FOR JUNE 1991

During June 1991, CTD will offer seven classes. The schedule is appended to this *Newsletter*. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of classes and notify attendees of any schedule changes. CTD will reschedule or cancel classes with fewer than six registrants *one week* prior to the scheduled date of the class.

*Introduction to Computing Facilities and Services* (one 3-hour session) provides an overview of the computing facilities and services available at Argonne. New Argonne computer users, as well as anyone else interested in computing at Argonne, should attend this class.

*Introduction to Unix* (three 3-hour sessions with labs) is an overview of the Unix operating system. Scientific computing users will need some familiarity with Unix to use the Cray X-MP, new scientific workstations, and future advanced architecture computers. Attendees will become familiar with using the file system; changing file permissions; using the vi editor; using mail; configuring the user environment; creating, compiling, and executing programs; using job and process control; using the Transmission Control Protocol/Internet Protocol (TCP/IP); using good computer protection practices; and using



many useful commands. CTD will establish temporary accounts on the CTD Sun Unix server for attendees for the duration of the class. The class will entail the use of Unix from ASCII terminals to reinforce the lecture content.

*Introduction to VAX/VMS* (one 3-hour session) is for first-time VAX/VMS users who need an overview of the features available in VAX/VMS. Attendees will become familiar with available VMS documentation and will learn how to logon to VMS, to create files, to set up sub-directories, to compile and link programs, to submit batch jobs, and to use the online HELP facilities. Also, attendees will learn how to access the companion computer-based instruction courses, "Introduction to VAX/VMS" and "Introduction to the Extensible VAX Editor." Everyone registering for this class should request an account on the VAX 8700 before attending the class to access the computer-based instruction courses. To request an account, call Account Services at extension 2-5425.

*Programming in VAX/VMS* (one 3-hour session) acquaints VMS users with features of VMS. Topics include programming VAX Fortran; writing DCL (Digital Command Language) procedures; using the VMS system debugger, the runtime library, and system services; and reviewing VMS internals.

*Introduction to UNICOS* (one 3-hour session) is for new users who want basic information on UNICOS on the Cray X-MP/14 high-performance computer. The class will review material covered in the *Introduction to Unix* class and will cover shell programming, Network Queuing System (NQS) job submission, and management of Cray files from the IBM MVS front-end stations or from scientific workstations via Transmission Control Protocol/Internet Protocol (TCP/IP).

*Introduction to Wylbur for MVS Batch Computing* (one 3-hour session with lab) explains how to use Wylbur, an efficient easy-to-learn interactive editing system ideally suited for users of the IBM MVS batch computing system. You can use Wylbur interactively to create and modify programs, data, and text; to submit IBM MVS and Cray UNICOS batch jobs; and to review IBM MVS and Cray UNICOS batch output.

*Using CMS with IBM 3270-Compatible Display Terminals* (two 3-hour lectures with labs) is for CMS users of IBM 3270-compatible display termi-

nals, IBM or Apple Macintosh personal computers with NCSA tn3270, or ASCII terminals with the Hydra Protocol Converter. The class is for people who send or receive electronic mail; who organize information in files and obtain information from files; who create and modify data, programs, or text files; or who use applications packages such as Cuechart, SAS, Script, and Tellagraf. The labs will be taught with ASCII terminals with the Hydra Protocol Converter, but the principles learned will apply to all the terminals mentioned above. Everyone registering for the CMS class must have a VM/SP account before attending the class. To request an account, contact Account Services (Building 221, Room A-147, extension 2-5425).

## CMS NEWS

### MEMORY CHARGE ELIMINATED FOR VM/XA

With the introduction of the Virtual Machine/Extended Architecture (VM/XA) system (scheduled for production on Saturday, May 18, 1991), CTD will no longer charge for memory usage in VM. The Office of the Chief Financial Officer has approved this rate change. As a result, users will have increased virtual memory for larger programs in VM and will have no virtual memory charge for more economical jobs.

With VM/XA on the IBM 3084 computer, memory is no longer a critical resource. By eliminating this charge, CTD has avoided the installation of local modifications to the new VM/XA system. These changes, which are at the heart of the system, have caused difficulties in the past. This situation will help to improve the maintainability and reliability of the system. The income from VM memory charging was only a small fraction of CTD's total income.

### CMS USERS SHOULD CONVERT MINIDISK BLOCKSIZES FROM 800 BYTES

Currently, some CMS users have their minidisks blocked at 800 bytes, an older format that was the default when the IBM CMS operating system was first installed at ANL. Although the 800-byte block-size is available under the Virtual Machine/Extended

Architecture (VM/XA) operating system, the Virtual Machine/Enterprise System Architecture (VM/ESA) operating system and the File Transfer Protocol (FTP) software and other applications will not work with it.

We encourage these CMS users to change their minidisk blocksize to 1,024, 2,048, or 4,096 bytes. The choice depends on the type of files on the minidisk: a 1,024-byte blocksize for small files, a 2,048-byte blocksize for medium files, and a 4,096-byte blocksize for large files.

To determine the optimum blocksize for your "A" minidisk, enter:

3380 A

This exec will estimate how many blocks will be used at each blocking factor for your current mix of files and will recommend the optimum blocksize to use.

To reblock a minidisk:

1. Dump the files to a magnetic cartridge tape to ensure a current back-up by entering (after mounting your tape):

TAPE DUMP \* \* A

For details, see "Using Magnetic Tapes in CMS" (Chapter 7) in *CMS at ANL* (ANL/TM 423, REVISION 2). Do not proceed unless you are certain that your files are backed up on tape. To verify the tape contents, enter:

TAPE SCAN

2. Format the 800-byte minidisk to another blocksize with the **FORMAT** command. For example, to format the minidisk for 1,024-byte blocks, enter:

FORMAT 191 A (BLKSIZE 1024)

3. Reload the files from the tape back to the newly reformatted minidisk by entering:

TAPE LOAD \* \* A

4. Release the tape.

Users with difficulties or questions should contact the User Services consultants at extension 2-5405.

## CRAY NEWS

### CRAY SCHEDULING CHANGES FOR NEW MEMORY

CTD will soon upgrade the Cray X-MP to 8 megawords of memory to increase user productivity by improving utilization and increasing capabilities. To use the memory effectively requires that CTD make some changes to the scheduling of both batch and interactive processes. The use of all of the memory by a single process has a major impact on the throughput and response time for other processes, especially interactive and network processes. It also degrades system performance with excessive idle time while the system moves a large process between the memory and the disk. These issues were discussed in detail at the CUG Installation Advisory Meeting on April 11, 1991.

By agreement with the users at the meeting, CTD will meet both the utilization and capabilities goals by limiting the maximum interactive process to 3 megawords and by limiting the maximum batch job to 6 megawords. Batch jobs larger than 3 megawords will only run during the overnight and weekend shifts, except test cases that are 2 minutes or less and are "u" or "w" jobs. These large test jobs will be run prior to 9:00 a.m., after 5:00 p.m., and over lunch (between 11:30 a.m. and 1:00 p.m.).

These changes will allow users to double the current size of production jobs during the overnight and weekend shifts. Response for interactive debugging and visualization will improve during most of the prime shift by limiting the size of the processes during this time. Also, the system can always keep at least one large process in memory while moving another, and there will still be room for many small system, network, and user processes. These scheduling changes will become effective when Cray installs the memory.



### OPTIMIZING USER CODES FOR THE CRAY X-MP

CTD has initiated a project to help optimize codes running on the Cray X-MP. The goal is to increase throughput on this system, thereby helping computational scientists improve their effectiveness in solving important scientific problems. Because of the demand for the Cray resources, CTD wants to ensure that users get the most out of the Cray system. CTD has been using the locally developed command, **mflops**, for monitoring the performance of programs running on the Cray. It has allowed CTD to identify programs that run inefficiently on the Cray and to contact users whose programs consume large amounts of CPU time and have a megaflop rate of less than 30, as indicated by **mflops**.

CTD has analyzed and modified programs from two of the largest users in January and February 1991, freeing up more than 38 hours of Cray CPU time per month at the current usage. In each case, the modified codes executed more than twice as fast as the original code. CTD plans to continue this service and to offer periodic seminars and workshops on optimization techniques.

You can use several programming techniques to improve the execution performance of a Fortran program. In most cases, the techniques used to improve these programs for the Cray will also improve the performance on other computer systems. Clearly, you can make the most significant gains when you develop your program by using the most efficient algorithms. However, some of the techniques that we have found to be most useful in increasing the performance of existing Fortran programs are:

- **Inlining.** This technique involves either the compiler, through the use of a compiler directive, or the programmer replacing the call to a subroutine with the actual code of that routine.
- **Loop splitting.** The compiler on the Cray attempts to vectorize only the innermost DO loops in a program. If these loops are lengthy, chances are some program structures ("bad code") exist in the loop that will inhibit vectorization. Therefore, if the programmer can split up the large inner loop into several smaller inner loops, isolating the so-called "bad code," then all of the inner loops, except those containing the "bad code," will vectorize.

- **Rewriting code that is one-dimensional to its natural form.** Many programs have been written for older computer systems that did not do a good job in index calculations. Thus, the programmer reduced all arrays to one dimension, where the index calculations were done explicitly in Fortran by the programmer. With today's computer architectures and sophisticated compilers, this programming technique may thwart optimization. Compilers will rarely optimize or vectorize these loops.

Two utilities are available on the Cray to obtain performance statistics for individual programs: **perftrace** and **prof**. The tool, **perftrace**, provides performance statistics down to the subroutine level. Included in the statistics are the megaflop rate and the proportion of time each routine consumes during the execution of the test. The tool, **prof**, which is very similar to the standard Unix profiling tool, also provides execution statistics at the statement and loop level, where the percent of time spent in each subroutine is provided. The man pages on the Cray for both **perftrace** and **prof** provides more information on each of these tools, as well as examples of their use. For assistance with performance-related issues, call Larry Rudsinski at extension 2-7219 or Peter Bertoncini at extension 2-4827.

### GRAPHICS NEWS

#### CTD PROMOTES THE X WINDOW SYSTEM COMPUTING ENVIRONMENT

The X Window System (normally called X) is a network-based graphics window system that was developed at the Massachusetts Institute of Technology (MIT) in 1984. X is often referred to by version and release number. Currently, X11R4 (Version 11, Release 4) is the most current release. The main feature of X is its portability, where an application written in X should run on any machine where X has been installed. X also provides network transparency, where applications can be run from your local machine or a remote machine with no noticeable differences. X has been accepted as a *de facto* industry standard windowing system in Unix and is supported by a consortium of industry leaders (such as AT&T, DEC, HP, IBM, and Sun). The *X Window System User's Guide* (0-937175-14-5) is a good introductory

document on using the X Window System and is available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

X provides a graphical user interface, where you can run multiple applications simultaneously in windows. Applications range from ASCII terminal sessions to graphical displays produced from your Disspla programs. X is capable of producing graphics and text, but is not considered a graphics language. X provides an interface to your own applications, which should be responsible for producing graphics. Currently, X provides the ability to display 2-D color images and animation. Future versions will accommodate 3-D graphics and will require more resources.

An appropriate workstation or X terminal is necessary to take advantage of the X capabilities. Traditional graphics terminals (for example, Tektronix 4014 and DEC VT 340) cannot take advantage of X capabilities.

Researchers involved in scientific computing should make it a priority to acquire X capabilities. X works primarily with Unix systems and the Transmission Control Protocol/Internet Protocol (TCP/IP) network protocol. In addition, DEC has implemented X for VMS and DECnet; Apple has implemented X for the Apple Macintosh. Virtually all major vendors now provide X as a product feature: Apple, Cray, DEC, HP, IBM, SGI, and Sun. Hundreds of applications have been written in X (in addition to Disspla, Tellagraf, SAS, and ANSYS), which will display output to X windows.

Scientists need not learn how to write X programs to take advantage of the X capabilities. CTD has tailored subroutines that make it easy to display graphics output generated from Disspla programs on X workstations. CTD has also developed the xmovie utility to display animations produced from Disspla programs. (See "Xmovie Available for CA-Disspla Postprocessing" in the April 1991 *Newsletter*.)

CTD has plans to develop other utilities for the X environment. Moreover, CTD plans to use X to develop prototype user interfaces to make scientific simulation programs easier to use.

Applications developers should exercise care to preserve the portability of X programs. CTD has begun using the MIT Athena libraries for developing

applications, because it is in the public domain and can be installed on workstations from various vendors. Vendor implementations of X Window (for example, DECwindows and Sun Openwindows) provide additional vendor-specific capabilities in addition to basic X Window capabilities. Products and programs written with DECwindows and Sun Openwindows may require libraries that work only with their respective brand of workstations. Applications developed by using these libraries may not be portable to other X installations.

CTD has begun to offer courses for users interested in the computing environment offered by the X Window System. Installing X on your Sun, SGI, or IBM workstation requires significant effort, but CTD assistance is available. For additional information, call Dave Leibfritz at extension 2-6596.

## MANAGEMENT INFORMATION SYSTEMS

### **HR DEVELOPING AN APPLICANT INFORMATION SYSTEM WITH LABORATORY-WIDE ACCESS**

The Employment and Placement Section of Human Resources (HR) is beginning to develop an Applicant Information System (AIS) to be implemented in October 1991. This system will process applicant information gathered during all phases of the employment cycle and will include creating new hire records in the Personnel System.

This system will replace another late 1970s HR system, the Applicant Flow System, which used CMS and the Inquire Database Management System. AIS will operate in the same computing environment as the other major administrative systems developed since 1983. It will operate on the central IBM computers by using the Customer Information Control System (CICS) for online access to applicant records and for reporting. AIS will also use the same software tools currently used to access and process Personnel System data, Payroll System data, and the Integrated Financial System (IFS) financial data.

In addition to providing many features for HR's internal use, major components of the system are planned for division office use as well. Most significant are the plans to allow authorized users direct access to applicant records, automatic generation of



the 430 Report, automated monitoring of routing information for Equal Employment Opportunity (EEO) purposes, and online action requests.

HR has been forming a users group to determine division office applicant information needs and desirable system capabilities. To volunteer for this users group, call Employment and Placement at extension 2-2974.

### **HUMAN RESOURCE SYSTEM REPLACEMENT PROJECT**

Human Resources (HR) has received funding from the Administrative Data Processing Oversight (ADPO) Committee to complete Phase II of the Human Resource System (HRS) Replacement Project. The new HRS will provide authorized users with direct, but controlled, access to the production Personnel databases used by HR. The information will be the most current data available, and more data will be available than is possible with the current system. Access to personnel data will continue to be limited to persons authorized to view the personnel records.

Initially, ADPO funded this Project in FY1989 but suspended the funding in FY1990 because of limited funds. This Project will replace the existing HRS, which CTD and HR implemented in 1978 by using CMS and the Inquire Database Management System. The new system will operate in the same computing environment as the other major administrative systems developed since 1983. It will operate on the central IBM computers by using the Customer Information Control System (CICS) for online access to the employee records and for reporting. Additionally, the new HRS will incorporate the same software tools currently used to access and process Integrated Financial System (IFS) financial data. These tools include Information Expert, Information Organizer, and, in the future, Expert Query and Expert Link. These choices were made to minimize the number of software technologies users must use when processing administrative information and to provide savings and productivity when processing the data.

A preliminary meeting was held last fall to bring the HRS Division Representatives up to date on the HRS Replacement Project. HR has begun to form a users group to identify divisional personnel informa-

tion related needs and desirable HRS features. To volunteer for this users group, call HR at extension 2-3401.

### **MERIT REVIEW SYSTEM POST-IMPLEMENTATION REVIEW MEETING RESULTS**

The Merit Review System (MRS) operates as a complete processing system for the merit review or with private systems developed and operated by the divisions. (See "Merit Review System Post-Installation Review" in the March 1991 *Newsletter*.) The Compensation Section of Human Resources has completed its internal and user group post-implementation review meetings. Based on the experience gained last year during the merit review cycle and the recent meetings, HR, CTD, and the users have identified 16 enhancements for this year's release of the system.

CTD has begun modifications to the system so that the user training sessions planned for the end of May 1991 use the latest release of the software. The major changes are improvements in navigation within the application, the elimination of the CLEAR key to terminate sessions, the addition of reporting capabilities, and the ability to perform all security-related operations within MRS.

For a complete list of planned enhancements to the system, call Compensation at extension 2-3015. The May 1991 training sessions will also cover these changes in the system.

### **INTEGRATED FINANCIAL SYSTEM UPDATE**

In April 1991, the Integrated Financial System (IFS) Project Team began testing the Accounts Payable (AP) check writing function of the AP software from Dun and Bradstreet Software (DBS). At the same time, the Team continues to produce the AP checks on a fourteen-year-old Entrex minicomputer in the Office of the Chief Financial Officer. The Project Team expects to cut over to the DBS check writing system by June 1991.

This system produces Automated Materials Order System (AMOS) payments, Automated Materials/Payables System (AMPS) checks, manual payments, and cost distributions. The Entrex mini-

computer previously provided all of the data entry for systems such as the Financial Information System (FIS) and Payroll. Data entry for these systems is now done on personal computers. Only the AP check writer function remains on the Entrex. Since the Entrex hardware is increasingly temperamental, has no back-up system, and costs \$900 per month for maintenance, the IFS Project Management determined it was more cost-effective to move the check writing function to the DBS AP system.

The IFS Project Team has selected and purchased new check stock; has developed routines to accept the AMPS transmission of vendors to whom checks should be issued and the authorized amount ("to-be-paid" data); has developed procedures for creating checks manually, AMOS payments, and accounting adjustments; and is creating a new vendor file with AMPS data.

Progress on all phases of the IFS project will be reported at the Financial Applications Committee to Effect Telesis (FACET) meetings held on the second Wednesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

## PERSONAL COMPUTING AND WORKSTATIONS

### POSTSCRIPT PRINTER QUEUES AVAILABLE TO NETWORK COMPUTER USERS

Argonne users of the Unix workstations, Apple Macintoshes, and central systems (IBM, Cray, and the central VAX cluster) can submit print jobs to AlisaPrint PostScript printers. The central VAX cluster with the AlisaPrint product queues print files for many PostScript printers at the Laboratory. This service allows users on many types of systems to submit print jobs to PostScript printers located in their work areas. A new version of AlisaPrint allows the central VAX cluster to handle additional print queues. AlisaPrint is the print service component of AlisaTalk, an Apple Macintosh-to-VAX connection product. Recently, CTD installed AlisaTalk 3.4, which reduces the Central Processing Unit (CPU) overhead and improves printing performance.

AlisaPrint prints both PostScript and ASCII text files. Unix system users submit print jobs by using the `lpr` command. The Unix system administrator needs to create an entry for the AlisaPrint printer in the system file `/etc/printcap`. A remote printing capability similar to the Unix `lpr` command is available to other VAXes that use the MultiNet Transmission Control Protocol/Internet Protocol (TCP/IP) software.

You can place a PostScript printer in your work area and connect it to the Laboratory AppleTalk network. Alternately, if an AppleTalk connection is not available in your work area, the printer can be connected to a Local Area Transport (LAT) terminal server port. Currently, many divisions have their own LAT terminal servers. You can also lease LAT terminal server ports from CTD.

PostScript printers located in users' work areas need to have an individual designated as a print queue manager to assist users having difficulty with the printer and to relay information to users. The print queue manager needs a central VAX cluster account and is given ownership of the AlisaPrint queue. The print queue manager can start and stop the queue, order print jobs in the queue, restart failed jobs, etc.

The AlisaPrint rates are:

- A \$50 one-time printer queue set-up fee.
- A \$10 per month subscription fee.
- A \$0.20 per 1,000 line print job charge.

If the PostScript printer is connected to a CTD-managed terminal server port, there is also a \$75 per month terminal server port fee and a \$1,100 one-time set-up fee.

Individuals interested in creating an AlisaPrint PostScript printer queue or in obtaining additional information should contact Barry Miller at extension 2-6808 or at electronic mail address [b10338@anlcv1.ctd.anl.gov](mailto:b10338@anlcv1.ctd.anl.gov).



## TELECOMMUNICATIONS NEWS

### **BUILDING 900 OFFSITE ACCESS**

At the end of April 1991, the Environmental Assessment and Information Sciences Division (EID) and the Technology Transfer Center (TTC) moved offsite to Building 900. To provide data, voice, and video communications, fiber and copper cables link Building 900 with central systems in Building 221. Building 900 has the same Private Branch Exchange (PBX) telephone service as all the other onsite buildings, and there are no changes in telephone numbers.

Initially, data communication between the Laboratory and the offsite building will be through a Fiber Distributed Data Interface (FDDI) connection at 100 million bits per second. Computer systems moved offsite will continue to communicate with the Laboratory-wide Ethernet, external data networks, the Advanced Computing Research Facility (ACRF), and EID machines in Building 221. This need will be met by connecting Ethernet networks in Building 900 to the Laboratory-wide FDDI network through multi-protocol routers. This connection will allow equivalent or better performance than was previously available between Building 362 and the rest of the Laboratory.

In addition to the FDDI connection, another fiber-optic cable will connect the Building 900 PBX node to the Laboratory PBX. Initially, this node will serve 465 telephone lines.

Intra-building network installation, configuration, and administration will be handled by EID staff. New Building 900 networks will have new Internet Protocol (IP) addresses and domain names. IP systems have retained their old node names, but the network name has changed from EES.ANL.GOV to EID.ANL.GOV. To reflect this change, CTD will update Laboratory-wide name servers.

The installed optic fibers have the capacity to carry data rates over one billion bits per second. CTD has installed and tested 80 optic fibers to Building 900. The number of fibers is based on existing requirements, planned expansion, and projected requirements for future experimental high-speed communication projects.

### **TCP/IP TERMINAL SERVER TIME-OUT CHARACTERISTICS**

The time-out characteristic of the CTD Transmission Control Protocol/Internet Protocol (TCP/IP) terminal server has been defined by CTD as follows: During an active session, if no keyboard input has occurred for 30 minutes, the terminal server will terminate that session and drop the connection. To prevent this disconnection, press the CTRL key and the circumflex (^) key at the same time and then press "X," which will hold the session but return to the terminal server prompt. While in this idle state, the terminal server will not time out. However, if the session (process) needs to send output to the terminal while in this idle state, the session (process) will wait at that point. To return to your active session, enter (at the terminal server prompt):

**resume**

This procedure should be used only if an application program does not require keyboard input for long periods of time. Do not use this procedure as a way of "camping out" on a port.

## VAX/VMS NEWS

### **NEW ARGONNE CENTRAL VAX CLUSTER CONFIGURATION**

Currently, CTD is upgrading the Argonne central VAX cluster and has placed an order for new equipment from Digital Equipment Corporation. The equipment includes a VAX 6000 Model 410 (6410) computer with 64 megabytes of memory, an Hierarchical Storage Controller Model 70 (HSC70), and six RA92 1.5 gigabyte disk drives. This upgrade also includes the removal of an obsolete VAX-11/750 computer, a VAX 8250 computer, and related peripheral equipment and controllers.

Figure 1 is a schematic diagram showing the two VAX processors attached to the existing star coupler. The attachment of the disk drives to the storage controllers shows redundant dual paths to some disk drives and single paths to others. The cluster also includes one existing VAXstation (not shown).

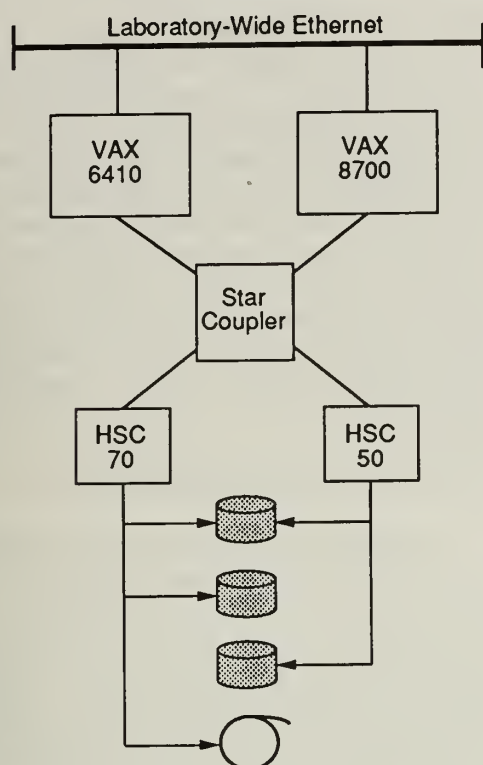


Figure 1: New VAX Cluster Configuration

The new VAX cluster will have two major nodes consisting of the existing VAX 8700 computer and the new VAX 6410 computer that will share the existing workload of the VAX cluster (see "Locating Argonne Central VAX Cluster Services" in this *Newsletter*). The VAX 8700 and VAX 6410 computers are rated at 6 and 7 VAX units of processing (VUPs), respectively, making them nearly equivalent in processing power. The HSC70 will more than double the disk and tape input/output (I/O) capacity of the cluster and will share the I/O channels to disk and tape with the existing HSC50 that will remain in use. All VAX processors have access to all disk volumes via an HSC through the existing star coupler (see Figure 1). Having two HSCs permits accessing some disks from two paths so that an outage of one HSC will not interrupt all service. With this upgrade, we will be able to create redundant paths to four disk drives and will select critical disks for this new feature to minimize service interruptions and downtime; redundant access of all drives requires more hardware and will follow at a later time.

CTD has earmarked three of the nine gigabytes of new disk storage being purchased for the planned growth of the Argonne Information Management (AIM) System database and a 1.7 gigabyte volume for an operational spare that will permit us to maintain continuity of all disk-based services. We will be able (1) to restore an existing volume that is unavailable because of a head crash or other malfunction that destroys online data, (2) to copy the data from operational but malfunctioning disk drives to get them out of service, and (3) to use the spare volume for non-critical, temporary data (such as the programs that do some system management and other housekeeping functions). This arrangement will free up temporary space that we have had to use for these functions. We will use the balance of the new disk space (approximately 4.3 gigabytes) for system and user permanent file needs; the majority of the space will be made available to users.

#### LOCATING ARGONNE CENTRAL VAX CLUSTER SERVICES

The hardware environment of the upgraded Argonne central VAX cluster (see "New Argonne Central VAX Cluster Configuration" in this *Newsletter*) will be essentially symmetric, but the software environment will not. License costs prohibit making products available on both of the VAX cluster major members; so users may encounter difficulties determining which processor to use. CTD is taking several steps to minimize the difficulties and to try to eliminate confusion. This article describes some choices that we have made and the aids that we are implementing to help users deal with the new environment. More details will be forthcoming in next month's *Newsletter*.

#### Interactive Environment

We will implement as much software as we can on both processors to avoid node-dependent choices. However, the cost of licensing all proprietary software products for both nodes would be high, and we hope to limit confusion by the choices we have made. Most users will still connect to node ANLCV1 and that node will continue to have most of the software that users have found there in the previous configuration. Both processors will continue to provide access to all network options, including BITnet (through the NJE network), DECnet, ESnet, MFEnet, and Internet. User terminal access and network access will not be different.



CTD is making the VAX 6410 computer the primary interactive cluster member, essentially replacing the VAX 8700 computer and making that the secondary member. That is, we will move all of the proprietary software directed to interactive programming and software development to the VAX 6410 computer. To accompany this change, we will assign the node name ANLCV1 to the VAX 6410 computer; the new name for the VAX 8700 computer will be ANLCV2. The Argonne Information Management (AIM) System will remain on the VAX 8700 computer; therefore, to use it, you must attach to cluster node ANLCV2 instead of ANLCV1. Other products that require either large memory or long-running times may be left on the VAX 8700 computer to take advantage of its large physical memory.

To make the transition to the new VAX cluster easier for AIM users, CTD has assigned a service name of AIM to identify the VAX processor having the AIM system. Specify AIM instead of ANLCV1 after you connect to a Local Area Transport (LAT) terminal server either locally or by dialing 972-8700 and aim.ctd.anl.gov when connecting from your workstation with telnet or rlogin or after connecting to the telnet terminal server at 972-5588. These service names are available now; after we install the new configuration, they will still be available and will direct your session to the appropriate host computer. Users who need to use general interactive services on ANLCV1 and either the AIM System or other services on ANLCV2 can create concurrent sessions on both systems by using a variety of methods (including multiple terminal server sessions and X Window System virtual terminal sessions).

### Batch Environment

Batch jobs will run on either of the processors. CTD will direct the prime-time batch workload to the VAX 8700 computer and will divide the off-prime workload between the processors. CTD will license the Fortran and C language compilers for both processors as well as the Numerical Algorithms Group (NAG), the International Mathematical and Statistical Library (IMSL), and the Disspla program libraries. By having these specific products available globally, we hope to maximize the probability that batch jobs can execute on either processor. Users will be able to submit the job to a generic batch queue (with the same name as the existing queues), and the system will direct the job to a specific execution queue when the resources become available. For batch jobs requiring a proprietary

product that is available on only one node, we will implement a resource identification mechanism by using the SUBMIT command /CHARACTERISTIC option. Users needing specific resources (for example, the SAS program) will specify /CHAR=SAS on their SUBMIT command, and the job will execute only on the execution queue having the same characteristic. The set of characteristics will be resource specific and not nodename specific, since we will want to maintain the flexibility of being able to move products from one node to another, as necessary, and not to force users to remember the node-name.

### SETUP Command Enhancements

CTD will also implement some enhancements to our local SETUP command that creates the execution environment for many of our products. SETUP will provide feedback to tell you whether the product that you are trying to set up is available. Currently, the feedback takes the form of messages on the screen in interactive sessions and to the log file in batch sessions; in addition, the SETUP command now creates the symbol "\_SETUP," which has the logical value of true or false if the product is available or not available, respectively. Command procedures can test the symbol to determine if the command has performed its job or not. For example:

```
$ ...
$ SETUP SAS
$ if _SETUP .eqs. "FALSE" then LOGOUT
$ ...
```

You can place this Digital Command Language (DCL) code fragment in a procedure that you submit as a batch job. If the job started on the execution queue of the system that did not have the SAS product, then the job would exit. (Be careful not to use this logic in your login.com file, or you will be prevented from logging in.)

Currently, CTD is implementing these and other methods by which users can determine which VAX to use when their software requirements cannot be fulfilled by either or both nodes. For further information about the services and resources that will not be available on all nodes of the Argonne central VAX cluster, see next month's *Newsletter*. We will also provide online documentation of the software configuration.

## USING TELLAGRAF MENUS TO MAKE CHARTS AND GRAPHS

Tellagraf 7.0 on node ANLCV1 in the Argonne central VAX cluster has a menu-driven user interface that you can use to make high-quality charts and graphs with little or no documentation needed. Although the Tellagraf product has been available for a long time, it formerly was necessary to learn the Tellagraf graphics language and to obtain the large Tellagraf reference documents to use it. The menu interface is easy to use, and you can produce the same presentation-quality graphics output with less investment of time than was needed to learn the old, command-driven user interface.

To execute Tellagraf Menus, enter:

\$ TAGMENUS (or TAGM)

The program will display a menu system on your terminal. To use Tellagraf Menus with the default settings, you need a VT-type terminal or emulator that is set up to display line-drawing characters and has cursor keys and an application keypad equivalent to those that are available on the DEC VT100 terminal. If you wish to display graphics on your terminal in your interactive session, then your terminal will need graphics capability. Tellagraf can draw graphics on a long list of graphics terminals and emulators, including X Window terminals and workstations. To view a list of graphics terminals, see the main menu item "Setup."

Use the main menu "Setup" item to define your primary (or interactive) device and your secondary (or hardcopy) device and choose other personal customization features that define your working environment and your personal preferences. These features and choices will be saved automatically in your Tellagraf profile file (TAGPRO.DAT); subsequent graphics sessions will use them to initialize your Tellagraf Menus session. The essential items from the main menu that you need to choose to create your graphics with Tellagraf Menus are:

**Chart:** to select a chart type  
**Data:** to enter the data  
**Text:** to add titles, axis labels, and legends  
**File:** to save or load your chart

Tellagraf Menus graphics files (charts) are saved or loaded from files with a file type of CHT. You

can view your work at any time on your primary device by using the keypad key labeled with the number 8 (KP8), and you can send your work to your secondary device by using the Gold key-KP8 (GK8) keystroke sequence. If the default key definitions are not appropriate for your terminal or terminal emulator, you can use the Setup menu to assign PF keys to meet your needs. Figure 2 shows a sample chart produced with Tellagraf Menus.

For a detailed description of the Tellagraf Menus software, see *CA-TELLAGRAF Menus Primer, Release 1.5 (QG99TG15MPS)*, available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

## BITS & BYTES

### NEW ES&H LOGO

The new Environment, Safety, and Health (ES&H) logo will appear on the cover of each issue of the *Newsletter*. This "First among equals"/Only you can do it! logo reminds people at the Laboratory of our environment, safety, and health goals and the important role each individual plays in achieving those goals.

### NEW SYSTEM IDENTIFICATIONS FOR THE CENTRAL SYSTEMS

CTD is installing a new VM operating system on the IBM 3084 computer: the Virtual Machine/Extended Architecture (VM/XA) operating system. We have assigned the VM/XA operating system a system identification (SID) code of "XV." The SID of the current Virtual Machine/System Product (VM/SP) system, which is "VM," will continue to be used for any applications that run on VM/SP until VM/SP is shut down.

Also, after we have installed VM/XA, we anticipate the installation of a new Multiple Virtual Storage (MVS) operating system on the IBM 3084 computer. This MVS system will be the MVS/XA system; we will assign it a system identification code of "XA."



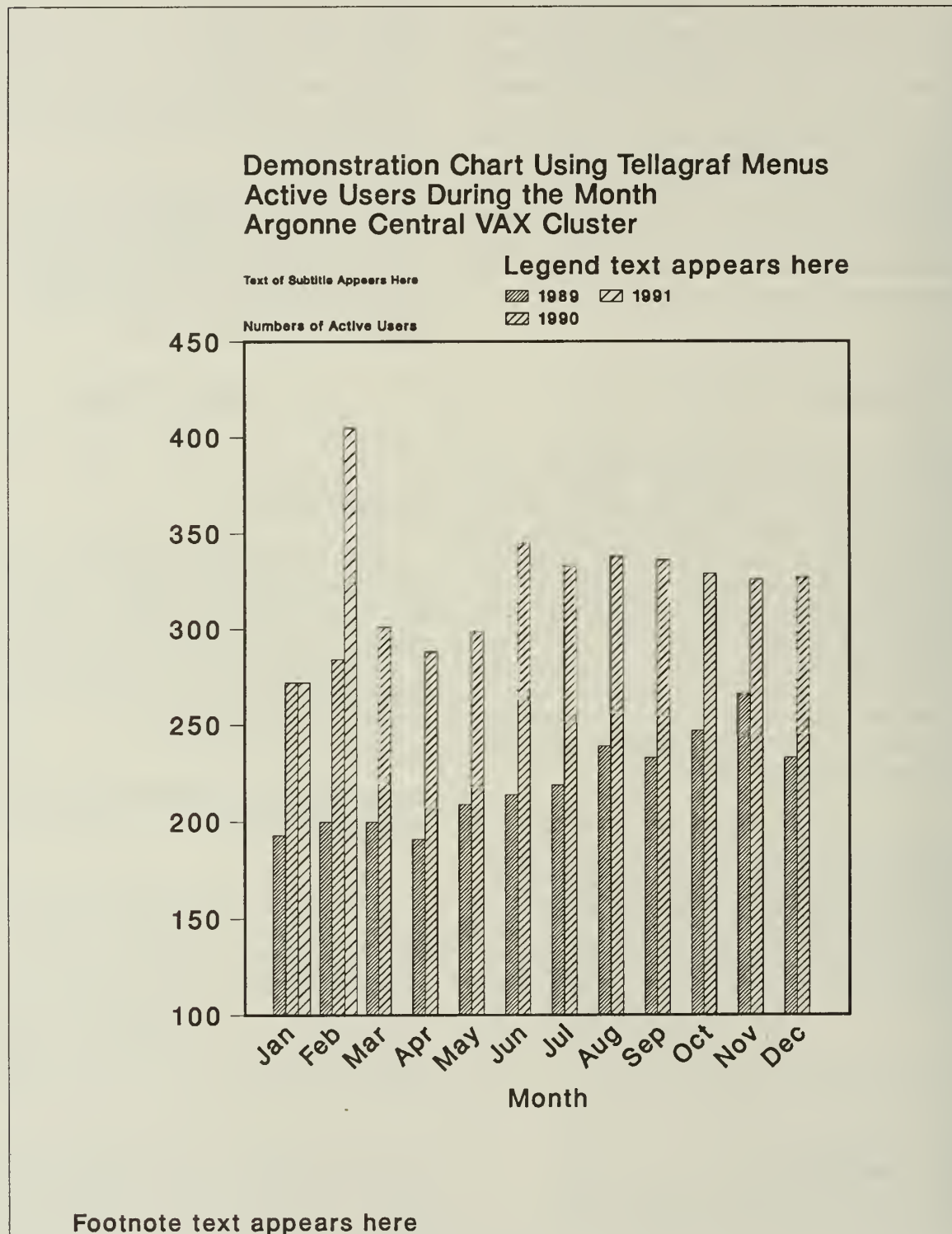


Figure 2: Sample Tellagraf Menus Chart

System IDs are stored in the computer usage accounting records produced for each CTD service. Users with the need to analyze computer usage data may refer to *Retrieving and Analyzing Computer Usage Accounting Data at ANL* (ANL/TM 402, REVISION 1).

## RECENTLY UPDATED AND PUBLISHED DOCUMENTS

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy):

### Computing and Telecommunications Documents

*An Assessment of Scientific Computing Technology: 1991-2001* (ANL/TM 486) was originally published as Appendix C ("Information Technology Resources Assessment") of the FY1991-FY1995 Department of Energy (DOE) *Information Technology Resources Long-Range Plan*. This technical memorandum summarizes the current status and forecasts future trends of the technologies and methods upon which scientific computing and the associated information systems are based. DOE uses these findings as guidelines in identifying required technological and human resources and in planning various DOE programs and facilities.

*CTD Writing and Editing Standards* (ANL/TM 487) provides information that will help writers produce better documents consistent with CTD standards in less time. This document offers good advice for CTD writers, specifies approved generic Script files for formatting documents in standard departmental formats, establishes the publication processes for CTD publications, and provides explanations and examples of special usage conventions.

## Numerical Algorithms Group Documents

The *NAG Fortran Mini Manual Mark 12* (1-85206-033-6) serves as an extensive pointer to the NAG Fortran Library, Mark 12. For each chapter in the NAG library, this *Manual* provides background advice on the subject area covered, recommendations on the choice and use of routines, and a summary of the purpose of each routine.

The *NAG Fortran Library Introductory Guide Mark 13* (1-85206-046-8) serves as an extensive pointer to the main NAG Fortran Library, Mark 13. For each chapter in the NAG library, this *Manual* provides background advice on the subject area covered, recommendations on the choice and use of routines, and a summary of the purpose of each routine.

The *NAG Fortran Library Introductory Guide Mark 14* (1-85206-054-9) serves as an extensive pointer to the main NAG Fortran Library, Mark 14. For each chapter in the NAG library, this *Manual* provides background advice on the subject area covered, recommendations on the choice and use of routines, and a summary of the purpose of each routine.

## University of Chicago Documents

The *University of Chicago Agreements with Personal Computer Vendors* (March 19, 1991) contains the latest lists of personal desktop computer discounts available through the University of Chicago to Argonne employees for both personal and Laboratory purchases. This revised price list supersedes the price list of March 7, 1991.

## ERRATUM: WORKLOAD STATISTICS

In the April 1991 *Newsletter*, when we printed the February "Workload Statistics," the numbers under the "Number of Enrolled Users" for VAX/VMS were not available. The numbers for VAX/VMS are:

BEGINNING OF MONTH	END OF MONTH	ACTIVE DURING MONTH
740	635	405



## USERS GROUP HIGHLIGHTS

### **MINUTES OF COMPUTER USERS GROUP MEETING HELD APRIL 2, 1991**

Cy Adams (Reactor Analysis) opened the meeting for Pat Garner (Reactor Analysis) at 3:00 p.m. Because Pat was unable to attend the meeting, his introduction as the new CUG chairman was postponed.

**Installation Subcommittee Meetings.** Doug Engert (Computing and Telecommunications) announced the meeting dates and tentative topics for the Installation Subcommittees for the VAX, VM/XA, and the Cray. User input is necessary to make the upgrades as smooth as possible and to understand the best way to meet the computing needs at Argonne.

**Password Protection Policy and Issues.** Jean Troyer (Computing and Telecommunications) discussed the Laboratory and DOE policies about computer protection as it relates to user passwords. DOE regulations require that the identity of an individual be established before access is allowed on a system. At ANL, user verification passwords have been used to establish a user's identity. To further enhance the education and awareness of password security, additional activities are included: holding yearly education and awareness meetings, documenting how to choose a good password, requiring passwords to be changed every six months, prohibiting the sharing of user passwords, and requiring that a new password cannot be the same as the old one. CTD also applies other security options, where available (such as running password checkers to determine if good password choices have been made). On local area networks (LANs), it is the LAN manager's responsibility to handle the security arrangements.

The installation of VAX/VMS 5.4 on the VAX 8700 computer allows additional security measures to be taken. While attempting to minimize the impact on the users, the Laboratory will implement these measures to provide better security. The same six-month expiration interval will be used. Passwords will be checked against a dictionary to make sure the password choices are not easily guessed, and users may not reuse a password for a year.

In response to a discussion, Jean pointed out that having the same password on different systems is not, in general, a good idea. A breach of security on one machine would allow intrusion on another system, especially if one of the systems allows privileged commands. The main difficulty is that different systems allow, or require, different rules; therefore, a user cannot always follow one pattern for the selection of a good password. Many users have accounts on several systems. Questions were also raised on how feedback on the impact of various DOE and governmental regulations impact the work to be done. Jean said there was no formal method for providing feedback and that it usually happened informally during audits and reviews. The user community expressed concern that there was no way to inform those making these regulations of which ones made sense and which ones don't help but hinder productivity. It was also suggested that the article recommending ways to choose a good password should be repeated on a regular, if infrequent, basis.

**CUG Scope and Future.** Larry Amiot (Computing and Telecommunications) gave an overview of the history of the CUG and recommended consideration be given to the scope and future activities. CTD is interested in knowing where the user community feels CTD should direct its funds and effort resources before the fact, rather than just responding to CTD initiatives. The original goals of the CUG--to advise and consult on services and utilization, to make known user needs and plans, to communicate developments and trends, and to discuss areas of mutual interest and difficulties--still provides a good framework for the CUG activities.

Several areas should be reviewed and updated to current situations. The CUG representative list has not been updated in several years and probably should be. A review of the current subcommittee structure could be undertaken to see if they are appropriate and timely and if a different emphasis should be used. There may need to be a revitalization in some areas and the addition of new areas (such as Unix services, parallel processing, and scientific workstations).

The final suggestion Larry raised involved a needs list developed in the early 1980s. It might be valuable to undertake a similar process now to see what the needs of the user community are and to provide guidance for CTD in the future. It would

also provide an indication of where things could be improved now. It was also suggested that the agenda for upcoming meetings should be more widely distributed, such as in the logon banner and the online NEWS.

These ideas are for discussion and consideration by the new CUG chairperson and the Advisory Group.

The CUG meeting adjourned at 4:20 p.m.

Ken Miles, CUG Secretary

#### **MINUTES OF MACINTOSH USERS GROUP MEETING HELD APRIL 10, 1991**

Bob Kampwirth (Materials Science) opened the meeting at 11:05 a.m.

At the May 1991 meeting, Radius, Inc. will demonstrate their monitors and acceleration boards. At the June 1991 meeting, Apple Computer will demonstrate System 7.0 (to be released May 13, 1991) and Quicktime, a multimedia package.

Falcon Microsystems has bought the remaining Macintosh IICx personal computers from Apple and will resell them at 60 to 70 percent off the retail price to qualified federal purchasers. Laboratory purchases should go through the Procurement Department. Personal purchases may be made only by employees who receive their paychecks directly from the federal government (for example, DOE). There are three basic models: a 2 megabyte random-access memory (RAM) floppy-only system at \$1,795, a 2 megabyte 40 megabyte-HD system at \$2,195, and a 5 megabyte 100 megabyte-HD system at \$2,695. Bob Kampwirth has Falcon literature. Contact Bill Fisher at Falcon for further information (301/386-6485).

Rodney East (Materials Science) announced that Dave Lifka (Computing and Telecommunications) is arranging for a site license for MacX, AU/X, and HyperCard with the University of Chicago. Anyone considering these purchases may want to wait until this agreement is complete.

A question was raised about the use of the Idaho National Engineering Laboratory (INEL) Reflections Hewlett-Packard 3000 terminal emulation soft-

ware. Apparently the Advanced Photon Source (APS) is successfully using this system. The topic of terminal emulation was suggested for an upcoming meeting.

Bob Kampwirth announced that Lee Wagar (Graphic Arts) informed him that they have purchased the following multimedia hardware/software platform: MacIIci with a NuVista card and MacroMind software. Graphic Arts will soon be able to prepare multimedia presentations when requested. The Division of Educational Programs (DEP) has shown an interest in a similar system. Materials Science (MSD) and DEP will work together this summer with two high school teachers to develop multimedia presentations of scientists using the Apple Macintosh.

Denise Daniels (Apple Corporation) demonstrated an exchange of data between IBM Personal Computers and Apple Macintoshes. One can do basic exchanges with the Apple File Exchange (AFE), included free of charge with the Apple Macintosh system software. AFE can exchange text, binary, MacWrite, and DCA formats between the disk operating system (DOS), ProDOS (the Apple II operating system), and the Apple Macintosh 3.5" disks in an Apple Macintosh Floppy Drive High Density (FDHD) SuperDrive. For the last two years, the SuperDrives have been the standard floppy drives for the Apple Macintoshes. They are also available as external drives. If a DOS disk is put into a SuperDrive without running AFE, an eject or format message will appear. With AFE, however, the directory of the DOS disk will appear in a scroll box, and one can copy files between the Apple Macintosh and the DOS disks. You can do some simple translation (such as removing the extra line feeds in the DOS format) in the exchange. You can also use AFE to format a disk in MS-DOS format.

MacLink PC 5.0 by DataViz provides more than 150 translators for the IBM Personal Computer, the Apple Macintosh, NeXT, and Sun files that you can use with AFE or alone on an Apple Macintosh or IBM Personal Computer. MacLink also includes DOS Mounter software that makes DOS disks inserted into the SuperDrive visible on your Apple Macintosh desktop and from within the Apple Macintosh applications. With this system utility, a DOS disk looks and behaves like an Apple Macintosh disk on the desktop, and you can open DOS documents and edit them by compatible Apple



Macintosh applications. Through "extension mapping," a DOS file can open into an Apple Macintosh application by double-clicking on the file's document icon (for example, WKS files mapped to Excel). Owners of older MacLink versions can call DataViz for upgrade pricing.

AccessPC from Insignia Solutions Inc. is similar to DOS Mounter. It, too, mounts DOS floppy disks, but will also mount SyQuest and Bernoulli cartridges. SoftPC (also from Insignia Solutions Inc.) is DOS emulation software for the Apple Macintosh. In MultiFinder, the Apple Macintosh and the IBM Personal Computer software can run side by side for easy copying between windows. It simulates an IBM PC-AT with an EGA monitor. There are incompatibilities with DOS communications programs and other DOS software that may be hardware dependent. In the demonstration, Lotus 123 was run with a DOS spreadsheet on an Apple Macintosh.

The Apple Macintosh Users Group normally meets the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee Wagar (Graphic Arts), Jim Lewellen (Computing and Telecommunications), or Ralph Leonard (Chemical Technology) for further meeting information. Lee Wagar sends the meeting announcements with QuickMail or E-mail, when possible, and with paper to those who have no electronic mail capabilities. If you have an electronic mail address and are not receiving an electronic meeting announcement, contact Lee Wagar at extension 2-5603 or via QuickMail.

The meeting adjourned at 12:10 p.m.

Carol Rosignolo, Acting Macintosh Users Group Secretary

# WORKLOAD STATISTICS (FEBRUARY 28 THROUGH MARCH 28, 1991)

## NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	END OF MONTH	ACTIVE DURING MONTH
CMS	1,234	1,236	436
Wylbur	1,674	1,667	325
MVS TSO	57	57	18
CICS	2,242	2,241	145
MVS Batch	2,242	2,241	648
VAX/VMS	635	624	411
Cray	351	343	127
All Systems	2,242	2,241	1,023

## INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				SESSION TIME (HRS)	CPU TIME (HRS)
	PRIME	NIGHT	WEEKEND	TOTAL		
<b>INTERACTIVE</b>						
CMS	11,568	2,818	1,547	15,933	39,784.0	97.68
Wylbur	5,748	181	222	6,151	6,602.0	5.45
MVS TSO	219	5	1	225	324.0	0.59
CICS	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
VAX/VMS	20,504	662	1,498	22,664	21,289.3	135.09
Cray	1,638	325	195	2,378	1,266.7	9.51
<b>IBM BATCH</b>						
Class U	7,341	1,814	949	10,104	n.a.	21.30
Class W	15,125	2,484	364	17,973	n.a.	88.66
Class X	22	749	165	936	n.a.	46.74
Class Y	0	1,239	946	2,185	n.a.	24.70
Nonmain	16,772	2,156	1,086	20,014	n.a.	0.00
Total	39,260	8,442	3,510	51,212	n.a.	181.40
<b>CRAY BATCH</b>						
u	1,638	325	195	2,158	n.a.	17.63
w	2,273	545	364	3,182	n.a.	252.60
x	196	220	165	581	n.a.	147.61
y	3,266	1,239	946	5,451	n.a.	88.54
Total	7,373	2,329	1,670	11,372	n.a.	506.38
<b>VMS BATCH</b>						
W BATCH	1,036	662	279	1,977	n.a.	72.15
X BATCH	19	50	11	80	n.a.	297.90
Y BATCH	2	0	20	22	n.a.	17.78
Total	1,057	712	310	2,079	n.a.	387.83

## INPUT/OUTPUT

Lines Printed	
Local	58,475,096
Remote	47,762,822
Fiche	35,684,219
Cards Punched-Local Only	36,246
Tape Mounts	5,829
Microfiche Developed	4,159
Microfiche Frames Developed	771,344

## GRAPHICS

	# OF JOBS	# OF FRAMES
CalComp Jobs	90	n.a.
Matrix 35mm Color	72	173
Matrix-8 x 10	4	4
Matrix-Negative	0	0
FR80 Film Plots		
35mm Black/White/Unsprocketed	0	0
35mm Black/White/Sprocketed	0	0
35mm Color	0	0
16mm Black/White/Sprocketed	0	0
16mm Color	0	0

## DATA MANAGEMENT

Tapes Stored	24,491
New Tapes Saved	199
Tapes Released	1,080
Datasets Exported to Tape	2,400
Datasets Imported from Tape	443

n.a. = not applicable



# AVAILABILITY STATISTICS, BY MACHINE (FEBRUARY 28 THROUGH MARCH 28, 1991)

	Monthly Totals	Hardware	Scheduled Software	Other	Hardware	Unscheduled Software	Other
<b>CMS</b>							
<i>All Shifts</i>							
Interruptions	6.00	0.00	5.00	0.00	0.00	1.00	0.00
Hrs Unavailable	7.26	0.00	6.93	0.00	0.00	0.33	0.00
MTF/Unscheduled	688.73					688.73	
<i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i>							
Interruptions	1.00	0.00	0.00	0.00	0.00	1.00	0.00
Hrs Unavailable	0.33	0.00	0.00	0.00	0.00	0.33	0.00
MTF/Unscheduled	251.66					251.66	
<b>WYLBUR</b>							
<i>All Shifts</i>							
Interruptions	6.00	0.00	6.00	0.00	0.00	0.00	0.00
Hrs Unavailable	4.91	0.00	4.91	0.00	0.00	0.00	0.00
MTF/Unscheduled							
<i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i>							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
<b>NVS TSO</b>							
<i>All Shifts</i>							
Interruptions	6.00	0.00	6.00	0.00	0.00	0.00	0.00
Hrs Unavailable	4.91	0.00	4.91	0.00	0.00	0.00	0.00
MTF/Unscheduled							
<i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i>							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
<b>JES3</b>							
<i>All Shifts</i>							
Interruptions	8.00	0.00	6.00	0.00	0.00	2.00	0.00
Hrs Unavailable	5.18	0.00	4.71	0.00	0.00	0.46	0.00
MTF/Unscheduled	345.40					345.40	
<i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i>							
Interruptions	1.00	0.00	0.00	0.00	0.00	1.00	0.00
Hrs Unavailable	0.05	0.00	0.00	0.00	0.00	0.05	0.00
MTF/Unscheduled	251.95					251.95	
<b>CICS</b>							
<i>All Shifts</i>							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
<i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i>							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
<b>VAX/VMS (VAX 8700)</b>							
<i>All Shifts</i>							
Interruptions	2.00	0.00	2.00	0.00	0.00	0.00	0.00
Hrs Unavailable	4.28	0.00	4.28	0.00	0.00	0.00	0.00
MTF/Unscheduled							
<i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i>							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
<b>CRAY</b>							
<i>All Shifts</i>							
Interruptions	16.00	4.00	8.00	0.00	0.00	4.00	0.00
Hrs Unavailable	22.88	12.08	9.86	0.00	0.00	0.93	0.00
MTF/Unscheduled	168.27					168.27	
<i>Monday-Friday, 7:00 a.m.-7:00 p.m.</i>							
Interruptions	4.00	0.00	0.00	0.00	0.00	4.00	0.00
Hrs Unavailable	0.93	0.00	0.00	0.00	0.00	0.93	0.00
MTF/Unscheduled	62.76					62.76	

COMPUTING CENTER USE IN DOLLARS BY COST CENTER (FEBRUARY 28 THROUGH MARCH 28, 1991)

CC	CNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
ADVANCED PHOTON SOURCE							
130	ADVANCED PHOTON SOURCE DIV	\$247	\$390	\$0	\$344	\$133	\$1,114
272	ADVANCED PHOTON SOURCE	\$129	\$0	\$0	\$50	\$70	\$249
340	APS DIVISION MANAGEMENT	\$25	\$0	\$0	\$0	\$48	\$72
341	APS ACCELERATOR PHYSICS	\$245	\$1,727	\$1	\$258	\$249	\$2,480
342	APS DIAGNOSTICS	\$0	\$15	\$0	\$0	\$38	\$53
343	APS LINAC	\$0	\$165	\$0	\$0	\$30	\$195
344	APS RF	\$3	\$3	\$0	\$2	\$24	\$31
345	APS VACUUM	\$9	\$1,389	\$0	\$0	\$2	\$1,400
347	APS CONTROLS	\$45	\$1	\$0	\$0	\$6	\$53
348	APS MAGNETS	\$56	\$10	\$0	\$1	\$145	\$213
349	APS POWER SUPPLIES	\$28	\$0	\$0	\$0	\$0	\$28
350	APS DIVISION MANAGEMENT	\$15	\$0	\$0	\$0	\$11	\$26
351	APS INSERTION DEVICES	\$47	\$72	\$0	\$8	\$57	\$184
352	APS BEAM LINE FRONT ENDS	\$29	\$260	\$0	\$54	\$107	\$451
353	APS BEAM LINE INSTRUMENTATION	\$15	\$136	\$0	\$22	\$113	\$285
360	APS CONVENTIONAL FACILITIES	\$33	\$0	\$0	\$70	\$1	\$104
361	APS PROJECT DIRECTION	\$32	\$0	\$0	\$2	\$24	\$58
362	APS MANAGEMENT GENERAL	\$19	\$0	\$0	\$0	\$74	\$93
SUBTOTAL		\$976	\$4,169	\$1	\$813	\$1,132	\$7,091
ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH							
110	BIO & MED RES DIV	\$1,428	\$756	\$89	\$1,030	\$1,295	\$4,598
125	TECHNOLOGY TRANSFER CENTER	\$50	\$0	\$0	\$1	\$113	\$164
149	ENVIRONMENTAL RESEARCH DIV	\$1,615	\$86	\$1,610	\$1,050	\$767	\$5,129
155	ENERGY SYSTEMS DIVISION	\$3,796	\$1,535	\$1,363	\$2,158	\$1,188	\$10,039
165	ENV ASSESS & INFO SCI DIV	\$9,624	\$5,905	\$6,366	\$860	\$3,312	\$22,068
174	ENER/ENV/BIO PROG DIR	\$11	\$0	\$0	\$6	\$101	\$118
246	ES-NAT'L ENERGY SOFTWARE CTR	\$139	\$0	\$0	\$705	\$525	\$1,368
274	ENER/ENV/BIO RES PROG ADM	\$133	\$0	\$0	\$2	\$230	\$365
SUBTOTAL		\$12,795	\$8,282	\$9,429	\$5,812	\$7,532	\$43,849
ENGINEERING RESEARCH							
102	EBR-II PROJECT-ANL WEST	\$1,661	\$52	\$112	\$2,168	\$128	\$4,122
104	FUELS AND PROCESSES	\$1,011	\$13	\$2	\$213	\$114	\$1,354
107	CHEMICAL TECHNOLOGY DIVISION	\$814	\$355	\$0	\$753	\$870	\$2,791
112	REACTOR ENGINEERING	\$12,179	\$1,385	\$13,714	\$6,744	\$4,167	\$38,190
114	MATLS & COMP TECH DIV	\$5,264	\$3,808	\$2,576	\$2,897	\$1,669	\$16,214
115	ENGINEERING PHYSICS DIVISION	\$4,505	\$939	\$301	\$1,914	\$1,411	\$9,070
116	REACTOR ANALYSIS	\$34,764	\$9,254	\$73,387	\$12,011	\$12,292	\$141,707
117	APPLIED PHYSICS-ANL WEST	\$2,987	\$8	\$8,529	\$147	\$384	\$12,054
118	REACTOR EXP & EXAM DIV	\$2,516	\$3,001	\$7	\$211	\$3,245	\$8,979
171	ENGRG RES PROG DIR	\$3	\$0	\$0	\$0	\$106	\$109
197	SPECIAL PROJECTS OFFICE	\$303	\$16	\$0	\$15	\$146	\$481
211	ENGINEERING PHYSICS DIVISION	\$57	\$11	\$0	\$9	\$107	\$184
269	CHEM TECH DIV-ANALYTICAL CHEM	\$89	\$3	\$0	\$9	\$108	\$209
271	ENGRG RES PROG ADMIN	\$211	\$0	\$0	\$6	\$299	\$516
SUBTOTAL		\$66,364	\$18,845	\$98,628	\$27,098	\$25,044	\$235,979
PHYSICAL RESEARCH							
105	MATERIALS SCIENCE DIVISION	\$763	\$6,158	\$38,264	\$1,623	\$954	\$47,762
109	PHYSICS DIV	\$2,814	\$912	\$206	\$1,584	\$867	\$6,383
120	CHEMISTRY DIV	\$996	\$10,904	\$42,502	\$418	\$545	\$55,365
136	INT PULSE NEUT SOURCE PROG	\$135	\$764	\$2,831	\$340	\$236	\$4,306
137	HIGH ENERGY PHYSICS DIV	\$468	\$1,386	\$3,245	\$1,132	\$987	\$7,218
139	DIV OF EDUCATIONAL PROGRAMS	\$289	\$1	\$0	\$83	\$151	\$524
145	MATHEMATICS & COMPUTER SCI DI	\$175	\$40	\$4,043	\$886	\$329	\$5,472
146	CTD DIV - SCI APPL & RES	\$31	\$0	\$0	\$22	\$42	\$96
273	PHYSICAL RESEARCH PROGRAM ADM	\$71	\$0	\$0	\$24	\$147	\$242
SUBTOTAL		\$5,742	\$20,166	\$91,091	\$6,111	\$4,258	\$127,368
EXTERNAL							
751	FERMI NATIONAL LABORATORY	\$609	\$0	\$0	\$265	\$505	\$1,378
752	NAVY	\$7,811	\$0	\$0	\$1,616	\$5,713	\$15,139
753	MORGANTOWN ENERGY TECH CENTER	\$12	\$0	\$0	\$0	\$0	\$12
754	DEPARTMENT OF ENERGY AT ANL	\$0	\$14	\$0	\$15	\$0	\$28
760	ABBOTT LABORATORIES	\$0	\$0	\$53	\$0	\$0	\$53
763	GENERAL ELECTRIC COMPANY	\$0	\$1	\$0	\$0	\$0	\$1
766	BECHTEL NATIONAL, INC.	\$0	\$316	\$5,886	\$93	\$1	\$6,297
775	SMITHSONIAN	\$0	\$0	\$0	\$0	\$3	\$3
777	UNIVERSITY OF CHICAGO AT ANL	\$37	\$0	\$0	\$152	\$0	\$189
778	ARGONNE CREDIT UNION	\$6	\$0	\$0	\$0	\$0	\$6
779	UNIVERSITY OF ILLINOIS AT CHI	\$6	\$0	\$0	\$0	\$0	\$6
780	NEW BRUNSWICK LABORATORY	\$12	\$0	\$0	\$0	\$0	\$12
781	STATE OF ILL. DEPT. MENTAL HE	\$0	\$0	\$0	\$0	\$8	\$8
782	PACKER ENGINEERING	\$3	\$20	\$0	\$0	\$0	\$24
783	WEST VALLEY NUCLEAR SERVICES	\$1,095	\$0	\$0	\$2	\$22	\$1,120
784	SUPERCONDUCTING SUPER COLLIDER LABS	\$1	\$49	\$134	\$0	\$0	\$184
SUBTOTAL		\$9,599	\$400	\$6,074	\$2,143	\$6,252	\$24,469



CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
			OPERATIONS				
143	SUPP SERV DIV - ELEC DEPT	\$174	\$5	\$0	\$284	\$347	\$809
148	HUMAN RESOURCES-MEDICAL DEPT	\$746	\$0	\$0	\$60	\$408	\$1,214
150	SUPPORT SERV DIV - SPEC MATLS	\$201	\$0	\$0	\$36	\$150	\$388
161	TECH INFO SERVICES DEPT	\$585	\$11,482	\$0	\$2,087	\$1,048	\$15,201
201	OFFICE OF THE DIRECTOR	\$247	\$0	\$0	\$136	\$122	\$505
202	OFC OF CHIEF OPER OFCR	\$16	\$0	\$0	\$87	\$101	\$204
210	SUPP SERV DIV - CENT SHOPS	\$401	\$0	\$0	\$76	\$544	\$1,021
216	SUPPORT SERVICES DIVISION	\$184	\$0	\$0	\$56	\$112	\$351
222	PLANT FAC & SERV-LODGING FAC	\$0	\$0	\$0	\$0	\$176	\$176
232	SUPPORT SERV DIV - SECURITY	\$275	\$0	\$0	\$0	\$0	\$275
234	SUPP SERV DIV-HEALTH PHY	\$516	\$1	\$0	\$21	\$375	\$912
235	SUPP SERV DIV-ENV SAFE HEALTH	\$1,045	\$16	\$0	\$163	\$435	\$1,659
236	SUPPORT SERV DIV - FIRE DEPT	\$7	\$0	\$0	\$0	\$101	\$107
245	COMPUTING AND TELECOM DIV	\$17,216	\$0	\$0	\$3,300	\$2,178	\$22,693
247	COMP & TEL DIV - COM SERV	\$1,818	\$0	\$0	\$347	\$1,322	\$3,488
260	SUPP SERV DIV-GRAPHIC ARTS	\$246	\$221	\$0	\$55	\$246	\$768
265	ELECTRONIC PUBLISHING SERVICE	\$0	\$4	\$0	\$0	\$0	\$4
275	OFFICE OF PUBLIC AFFAIRS	\$420	\$0	\$0	\$30	\$133	\$583
276	OFC PUB AF - MOTN PIC UNIT	\$39	\$0	\$0	\$0	\$11	\$50
296	TELECOM COST/RECOVERY	\$0	\$0	\$0	\$65	\$0	\$65
315	SUPP SERV DIV-MATLS & SERV	\$2,699	\$0	\$0	\$1,011	\$573	\$4,284
316	PLANT FAC & SERV-VEH MAINT	\$0	\$0	\$0	\$0	\$173	\$173
317	PLANT FAC & SERV-DRIV&RIG SER	\$13	\$0	\$0	\$1	\$100	\$114
319	SUPP SERV DIV-TRAVEL OFC	\$4	\$0	\$0	\$83	\$100	\$187
322	SUPP SERV DIV-PROCUREMENT	\$40	\$0	\$0	\$1	\$108	\$149
333	QA, ENVIR & SAFETY OFC	\$72	\$2	\$0	\$17	\$198	\$290
336	SUPP SERV DIV - INSPECTION	\$13	\$2	\$0	\$1	\$16	\$32
400	OFC OF CHIEF FIN OFFICER	\$38,725	\$0	\$0	\$3,152	\$12,316	\$54,194
401	ACCOUNTING	\$0	\$0	\$0	\$61	\$100	\$161
402	OFC CHIEF FIN OFCR-DATA ENTRY	\$9	\$0	\$0	\$150	\$0	\$159
403	BUDGET OFFICE	\$81	\$0	\$0	\$0	\$372	\$454
410	HUMAN RESOURCES DEPARTMENT	\$9,002	\$0	\$0	\$1,096	\$1,563	\$11,661
412	AFFIRM ACTION PROGRAM	\$54	\$0	\$0	\$45	\$101	\$200
501	PLANT FAC & SERV-BLDG MAINT	\$55	\$0	\$0	\$47	\$355	\$457
502	PLANT FAC & SERV-INSTALLATION	\$26	\$0	\$0	\$3	\$100	\$129
503	PLANT FAC & SERV-GROUNDS	\$0	\$0	\$0	\$0	\$100	\$100
504	PLANT FAC & SERV-CUSTODIAL	\$3	\$0	\$0	\$0	\$100	\$103
505	PLANT FAC & SERV-WASTE MGMT O	\$60	\$0	\$0	\$72	\$100	\$232
506	PLANT FAC & SERV-PLANT MGR OF	\$475	\$0	\$0	\$11	\$310	\$795
510	PLANT FAC & SERV-UTILITY SYST	\$0	\$0	\$0	\$0	\$100	\$100
512	PLANT FAC & SERV-FAC PLNG/ENG	\$761	\$0	\$0	\$74	\$160	\$994
530	SITE MGRS OFC-ANL WEST	\$62	\$69	\$0	\$92	\$149	\$372
531	PERSONNEL-ANL WEST	\$163	\$0	\$0	\$50	\$100	\$312
532	SPECIAL MATLS-ANL WEST	\$731	\$0	\$0	\$198	\$259	\$1,189
533	ACCOUNTING-ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
534	PURCHASING-ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
535	SECURITY - ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
536	SAFETY STAFF-ANL WEST	\$129	\$0	\$0	\$0	\$102	\$231
537	INFORMATION SERVICE-ANL WEST	\$0	\$72	\$0	\$51	\$172	\$295
538	MATLS HANDLING-ANL WEST	\$76	\$0	\$0	\$10	\$100	\$187
548	ANL WEST GENERAL EXPENSE	\$133	\$0	\$0	\$57	\$0	\$190
550	COMPUTER APPL & SERV - ANL-W	\$105	\$1	\$0	\$18	\$101	\$226
551	RAD MONITORING-ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
554	MACHINE SHOP-ANL WEST	\$27	\$0	\$0	\$4	\$100	\$131
556	SITE ENGRG-ANL WEST	\$96	\$0	\$0	\$36	\$100	\$232
557	PLANT SERVICES-AW-SERVICE REQ	\$42	\$4	\$0	\$7	\$100	\$153
558	PLANT SERVICES-AW-FUNCTION	\$3	\$0	\$0	\$0	\$0	\$3
561	OFC OF QUALITY ASSURANCE - AW	\$3	\$0	\$0	\$0	\$101	\$104
SUBTOTAL		\$77,796	\$11,878	\$0	\$13,152	\$26,736	\$129,563
TOTAL		\$173,273	\$63,741	\$205,222	\$55,129	\$70,954	\$568,319

## COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	Onsite (Illinois)	Onsite (Idaho)	Offsite (Area Code 708)
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	n.a.	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		

### CICS, CMS, Wylbur, and TSO Interactive Computing Services

IBM 3270 Protocol Converter			
1200 to 19.2K Bits Per Second (Onsite)	2-3270	n.a.	
1200 to 2400 Bits Per Second (Offsite)			972-3270
9600 to 19.2K Bits Per Second (Offsite)			972-3219
X.25 Terminal Multiplexor			
300 to 19.2K Bits Per Second (Onsite)	2-2525	n.a.	
1200 to 2400 Bits Per Second (Offsite)			972-2525
9600 to 19.2K Bits Per Second (Offsite)			972-2519
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	n.a.	972-2212
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	n.a.	972-7612
300 Bits Per Second	2-7603*	n.a.	972-7603*

\* When using a 300 bits per second modem, you must use a capital "P" to logon.

### Batch Remote Job Entry Service

2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573

### Central DEC VAX 8700

1200 to 19.2K Bits Per Second (Onsite)	2-8700	n.a.	
1200 to 2400 Bits Per Second (Offsite)			972-8700
9600 to 19.2K Bits Per Second (Offsite)			972-8745

### Argonne TCP/IP Network

1200 to 19.2K Bits Per Second (Onsite)	2-5588	n.a.	
1200 to 2400 Bits Per Second (Offsite)			972-5588
9600 to 19.2K Bits Per Second (Offsite)			972-4726

### Argonne MFEnet Dial-Up

300 to 19.2K Bits Per Second	2-7920	n.a.	972-7920
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### Tymnet Commercial Packet-Switching Network

Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.

## COMPUTING CENTER SERVICE SCHEDULE (All Times Are Central Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	VM/SP	VMS	MFEnet Gateway
Monday to Thursday	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

\*\* Except for the interruption of UNICOS from 4:00 a.m. until 8:00 a.m. on Mondays for maintenance, service continues uninterrupted past 4:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 3:00 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 3:00 p.m. before making plans that require the availability of a service the following morning.



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Argonne National Laboratory  
Computing and Telecommunications Division  
June 1991

## COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering seven classes. There is no charge for attending classes, unless otherwise indicated. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the class and notify attendees of any schedule changes. CTD will reschedule or cancel any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

### INTRODUCTION TO COMPUTING FACILITIES AND SERVICES

Goals: To develop an overview of available computing facilities and services provided by CTD.

Length of Class: One 3-hour session

Date and Time: June 6, 1991 (Thursday), 9:00 a.m. to noon

Location: Building 221, Room A-261

Suggested Reading: *Guide to Computing at ANL* (ANL/TM 336, REVISION 2)  
*Recommended Documentation for Computer Users at ANL* (ANL/TM 379, REVISION 2)  
*Guide to Telecommunications at ANL* (ANL/TM 422, REVISION 1)

Instructor: Fred Moszur

### INTRODUCTION TO UNIX

Goals: To learn the basic concepts required for using Unix computer systems. This class will be a general overview of Unix commands, editing, and file systems and will demonstrate topics from logging on to creating, compiling, and executing a program.

Length of Class: Three 3-hour sessions with labs

Dates and Time: June 11, 12, and 13, 1991 (Tuesday, Wednesday, and Thursday) 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-261

Suggested Reading: *A Practical Guide to the Unix System* (0-8053-0243-3)

Instructor: Dave Leibfritz



## INTRODUCTION TO VAX/VMS

Goals: To learn some basic concepts on VAX/VMS (including how to logon to VMS, create files, set up subdirectories, compile and link programs, submit batch jobs, use the online HELP facilities, and access the companion computer-based instruction courses in VMS).

Length of Class: One 3-hour session

Date and Time: June 13, 1991 (Thursday), 9:00 a.m. to noon

Location: Building 221, Room A-261

Instructor: Dave Lifka

## PROGRAMMING IN VAX/VMS

Goals: To learn to use the VAX/VMS system. This class will include VAX Fortran programs, suggestions for writing basic Digital Command Language (DCL) command procedures (including a LOGIN.COM), the usage of the VMS system debugger and the interprocess communications features, and an overview of the aspects of VMS internals affecting program performance.

Length of Class: One 3-hour session

Date and Time: June 18, 1991 (Tuesday), 9:00 a.m. to noon

Location: Building 221, Room A-261

Instructor: Dave Lifka

## INTRODUCTION TO UNICOS

Goals: To learn the basics of the Cray UNICOS file system, space management, and shell programming. To learn how to use the Network Queueing System (NQS) for Cray batch processing and how to submit work and to manage Cray files from the IBM MVS front-end station and the Laboratory-Wide Local Area Network.

Length of Class: One 3-hour session

Date and Time: June 20, 1991 (Thursday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-261

Suggested Reading: *A Practical Guide to UNIX System V* (0-8053-8915-6)  
*UNICOS Primer* (SG-2010)

Instructor: Tom Canfield  
Steve Karlovsky

INTRODUCTION TO WYLBUR FOR MVS BATCH COMPUTING

Goals: To learn to use Wylbur, an interactive system that provides a convenient interface for IBM MVS batch processing. To learn about the IBM MVS batch system at Argonne (including how to compile and execute programs and obtain printer output). Wylbur is efficient, easy-to-learn, and powerful for editing data and programs and for submitting jobs for IBM batch execution.

Length of Class: One 3-hour session with lab

Date and Time: June 25, 1991 (Tuesday), 9:00 a.m. to noon

Location: Building 221, Room A-261

Suggested Reading: *SLAC Wylbur Tutorial*  
*OBS Wylbur Reference Manual*

Instructor: Mike Thommes

USING CMS WITH IBM 3270-COMPATIBLE DISPLAY TERMINALS

Goals: To learn to use CMS with an IBM 3270-compatible display terminal, an IBM or Apple Macintosh personal computer with NCSA tn3270, or a line-oriented terminal capable of using the Hydra Protocol Converter to send and receive electronic mail; to write documents and memos; to organize information in files; to create program, text, and data files; to manipulate files with the editor; to invoke programs like statistical and graphic packages; and to get printed reports.

Length of Class: Two 3-hour lectures with labs

Dates and Time: June 25 and 26, 1991 (Tuesday and Wednesday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-216

Suggested Reading: *IBM VM System Product: CMS Primer (SC24-5236)*  
*CMS at ANL (ANL/TM 423)*

Instructor: Pete Bertoncini

COMPUTER-BASED TRAINING COURSES

Currently, CTD offers one computer-based training course in CMS and five courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

IBM CBT Course

(Enter SLFTEACH at the CMS prompt.)

SLFTEACH Introduction and Advanced Concepts of Xedit

DEC CBT Courses on the Central VAX 8700

(Enter RUN "course name" at the DCL level.)

Course Name	Course Title
VMSCAI	Introduction to VAX/VMS
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers





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1.86/5:  
2/7

# ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division  
DEPOSITORY  
VOLUME 22 NUMBER 7 JULY 1991

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"First Among Equals"  
Only you can do it !



# COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory

Building 221

Argonne, Illinois 60439-4844

FAX: 708-972-5983

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

		Room	Phone	Electronic Mail Address
Division Director	David Weber	A251	2-7155	B22788 AT ANLVM
Computer Protection Program Manager	Jean Troyer	A237	2-7440	B18216 AT ANLVM
Computing and Telecommunications Operations	Larry Amiot	B243	2-5432	B10523 AT ANLVM
Computer Network	Bob McMahon	B239	2-7270	B17385 AT ANLVM
Data Communications	Linda Winkler	B251	2-7236	B32357 AT ANLVM
Service Engineering	Paul Phillips	D118	2-4343	B36679 AT ANLVM
	Vern Tantillo	C112	2-4181	B06434 AT ANLVM
Computer Operations	Gary Schlesselman	A113	2-5437	B09819 AT ANLVM
Day and Weekend Operation	Bob Bilshausen	A134	2-5421	
Document Distribution Counter		A134		
Evening and Overnight Operation	Mike Monczynski	A134	2-5421	
Tape Librarian	Sandra Vasko	A134	2-7681	B18669 AT ANLVM
Systems Programming	Doug Engert	B231	2-5444	B17783 AT ANLVM
Telephone Services	Allen Winter	B247	2-2764	B07059 AT ANLVM
User Services	Fred Moszur	A121	2-7419	B27564 AT ANLVM
Computer Use Authorizations	Fran Carnaghi	A147	2-5425	B27596 AT ANLVM
Consultants		A139	2-5405	CONSULT AT ANLVM
Documentation Advice		A139	2-5405	CONSULT AT ANLVM
Education and Assistance	Pete Bertoncini (Acting)	E101	2-4827	B15013 AT ANLVM
Management Information Systems	Diane O'Brien	B151	2-7167	B26424 AT ANLVM
Financial Systems	Nick Moore	D239	2-8075	B31048 AT ANLVM
Human Resource Systems	Bob Hischier	B147	2-7272	B22639 AT ANLVM
Information and Production Services	Miriam Bretscher	B139	2-7252	B26187 AT ANLVM
Materials and Plant Systems	Rich Slade	B159	2-7329	B32848 AT ANLVM
Planning, Finance, and Administration	Mike Boxberger	A245	2-5638	B34540 AT ANLVM
Scientific Applications and Research	Charles Mueller	A231	2-7153	B11284 AT ANLVM

The Division operates a Cray X-MP/18 with UNICOS 6.0.12, a Sun 3/280 gateway, a central VAX cluster (a DEC VAX-11/750, a DEC VAX 8700, and a DEC VAX 6410) with VMS 5.3, an IBM 3084QX9, and three Hewlett-Packard 3000 minicomputers. Software on the IBM computers includes VM/XA SP 2.1 with CMS Release 5.6, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E), Release 1.3.0, and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 708-972-5415.

The *Argonne Computing Newsletter* is published monthly by the Computing and Telecommunications Division, Argonne National Laboratory, Argonne, Illinois 60439; edited, prepared, and formatted by Cliff Caruthers and April Heiberger with CMS, Waterloo Script, and the Linotype L300P typesetter. This *Newsletter* was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

## COMPUTING COMMENTS

### VAX 6410 IN PRODUCTION

On Monday, June 10, 1991, CTD placed the VAX 6410 computer in production. The addition of the VAX 6410 computer more than doubles the processing capacity of the central VAX cluster. Node ANLCV1 (VAX 6410) is primarily for general interactive and batch use. Node ANLCV2 (VAX 8700) is primarily for the Argonne Information Management (AIM) system and batch computing. CTD has added new disk volumes to supply much needed space for the growing AIM system database and users' files.

Over the coming weeks, we will move user files grouped by cost centers in an effort to spread out existing files to leave more free space on each of the user disk volumes, which will help to alleviate the disk space restrictions. The new disk configuration has 11.8 gigabytes spread over seven user volumes; the former configuration had 6.8 gigabytes spread over four volumes. Cost center moves are designed to be transparent to the users when they use the recommended logical name, CCnnn, to refer to the cost center disk volume ("nnn" is the three-digit cost center number).

### CTD THEORY INSTITUTE: PARALLEL MONTE CARLO SIMULATION

From August 12 through 15, 1991, the Computing and Telecommunications Division (CTD) will host a Theory Institute entitled "Parallel Monte Carlo Simulation: Issues, Tools, and Techniques." This Institute (funded by the Associate Laboratory Director for Physical Research) will bring together leading scientists conducting research via Monte Carlo methods, computer vendor representatives who know what has and has not been done successfully on their parallel machines, and experts in parallelization of specific Monte Carlo codes and methods.

The Institute will address the following questions, from which Institute attendees will formulate a consensus to serve as a guide for future research in parallel Monte Carlo computation:

- What are the primary challenges---mathematical, algorithmic, and technological---to parallelization of the kinds of Monte Carlo calculations most important in particular areas of scientific research?
- How far along are we in our efforts to meet these challenges?
- What remains to be done (by applications scientists, mathematicians, algorithm developers, and hardware designers)?

While participation in the Institute by persons outside the Laboratory is by invitation only, we expect to be able to accommodate approximately two participants from each Argonne scientific division. If you are interested in attending, please contact David Malon (Building 221, Room A-105, extension 2-5174, electronic mail address malon@silence.ctd.anl.gov) by July 31, 1991.

## CRAY NEWS

### CRAY MEMORY UPGRADE COMPLETED

As previously announced in the May 1991 and June 1991 issues of the *Newsletter*, CTD upgraded the Cray X-MP to 8 megawords of memory during the weekend of June 8-10, 1991. This upgrade allows users to double the memory size of batch jobs during the overnight and weekend shifts. By increasing the number of memory banks from 16 to 32, we reduce the occurrences of memory bank conflicts, which slow performance when two variables need to be fetched from the same bank of memory. Figure 1 and Figure 2 show the megaflop performance for 4 megawords and 8 megawords, respectively, for typical vector addition and multiplication operations with various strides (that is, the distance between any two variables in a vector arithmetic operation).

Also, as previously announced in the April 1991 and June 1991 issues of the *Newsletter*, CTD upgraded the Cray operating system to UNICOS 6.0.12 on Monday, June 24, 1991.



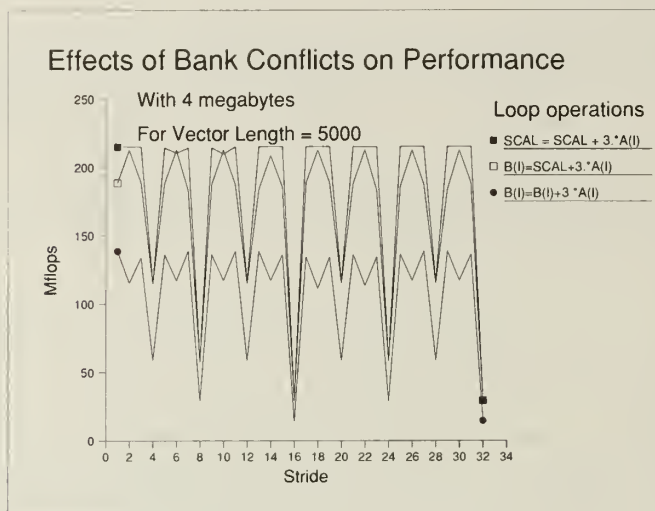


Figure 1: Performance Before (4 Megabytes)

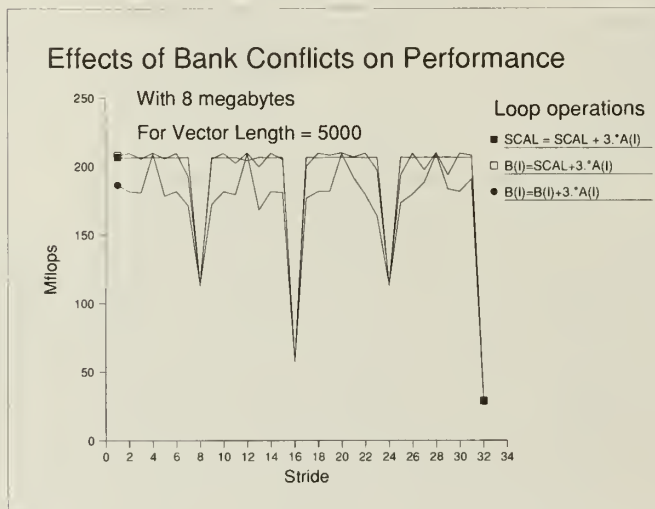


Figure 2: Performance After (8 Megabytes)

### UNICOS 6.0 IMPROVES FILE SYSTEM FORMAT

UNICOS 6.0 offers Cray users a new file system format with POSIX compliance and features similar to the Berkeley file system, including file names up to 256 characters (versus 14 in pre-UNICOS 6.0) and symbolic links. The Cray UNICOS 6.0.12 operating system can work with either the pre-UNICOS 6.0 or the new UNICOS 6.0 file system formats.

Because there are differences between these two file system formats, CTD has decided to separate the recent operating system upgrade from the file system conversion.

Since June 24, 1991, UNICOS 6.0.12 has been running on the Cray X-MP/18. On Wednesday, July 10, 1991, CTD will begin converting the Cray /n2 Network File System to the UNICOS 6.0 file system format. This Cray file system is mountable and accessible by Unix workstations, and it will allow CTD and users to test the new file system format prior to converting the remaining Cray file systems. During the conversion, we caution users to be aware that file names longer than 14 characters will be truncated to 14 characters when files are copied or moved from the UNICOS 6.0 file system format of /n2 to the pre-UNICOS 6.0 file system format of the /n1 file system. Such truncation of a long file name could result in an existing /n1 file being overwritten by the copy or move operation. We hope to have all Cray user file systems converted by August 1, 1991.

### CHANGES FOR CA-DISSPLA USERS UNDER UNICOS 6.0

CA-Disspla Version 10.5 has been found to be incompatible with the UNICOS 6.0 operating system. CA-Disspla Version 11.0 has been available for testing on the Cray since early this year and is now the production version of CA-Disspla on the Cray. The \$DISLIB shell variable is no longer defined. Users should convert their codes to CA-Disspla 11.0 and link by using the \$DISLIB11 shell variable.

In addition, UNICOS 6.0 recognizes a comma as a valid character in a filename. Because the \$DISLIB11 shell variable translates to a comma-separated list of library filenames, the UNICOS commands `cf77` and `segldr` will interpret \$DISLIB11 properly only when it is preceded by the command line switch `-l`.

To link to CA-Disspla 11.0 with the `cf77` command, enter:

```
cf77 -l $DISLIB11 program.f
```

To link to CA-Disspla 11.0 with the `segldr` command, enter:

```
segldr -l $DISLIB11 program.o
```

For the proper use of CA-Disspla 11.0 in Cray UNICOS, see the addendum to the *ANL Supplement to the CA-Disspla User's Manual* (ANL/TM 467). ANL/TM 467, its addendum, and the *CA-Disspla User Manual: Release 11.0* (RG 99 DS 1101S), Volumes 1 and 2, are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies).

### UNICOS PASSWORD AGING TO BE IMPLEMENTED

Beginning on Monday, July 22, 1991, CTD will implement password aging for accounts on UNICOS comparable to that implemented for the VAX/VMS systems and for the IBM systems controlled by the Resource Access Control Facility (RACF). We will continue to initialize new accounts with expired passwords and will require a new UNICOS user to change this password at the first logon or batch job submission. However, new passwords will expire 26 weeks after the last change. This expiration is similar to the six-month limit in VAX/VMS and RACF.

For existing UNICOS accounts, we will set only the password aging mechanism to expire passwords 26 weeks after July 22, 1991.

UNICOS users can change logon passwords as often as they like. They will receive a warning message approximately two weeks before the 26-week expiration date that informs them of the impending expiration of their UNICOS password.

## GRAPHICS NEWS

### XMOVIE AND XWINDUMP PROVIDE ANIMATION ON THE CENTRAL VAX CLUSTER

CTD has developed the ANLXDRV and XWINDUMP subroutines and an Xmovie postprocessor for CA-Disspla that are now available on the central VAX cluster. (See "Using Computer Associates X Window Driver on the Cray" in the March 1991 *Newsletter* and "Xmovie Available for CA-Disspla Postprocessing" in the April 1991 *Newsletter*.)

The syntax for calling ANLXDRV and XWINDUMP is the same for the VAX and the Cray. The Disspla code developed for the Cray calling these subroutines should run on the VAX with no modifications.

Help is available online for Xmovie, ANLXDRV, and XWINDUMP by entering HELP and the appropriate topic.

To link your Fortran code to the CTD routines, enter (either interactively or in a command procedure):

```
$ LINK progname.obj,dislib/opt
```

Before you run your program, the DISPLAY environment variable must point to a valid X11 display. To set the DISPLAY variable, enter:

```
$ SET DISPLAY/CREATE/TRANSPORT=TCPIP
$ SET DISPLAY/NODE=display_address
```

where "display\_address" is a valid Transmission Control Protocol/Internet Protocol (TCP/IP) address for an X11 display. For example, to set the display to the CTD Sun named shylock, enter:

```
$ SET DISPLAY/CREATE/TRANSPORT=TCPIP
$ SET DISPLAY/NODE=shylock.ctd.anl.gov
```

For machines communicating via DECnet, enter:

```
$ SET DISPLAY/CREATE/TRANSPORT=DECNET/NODE=nodename
```

where "nodename" is a valid DECnet nodename.

Once your Disspla code has run and created the big x window dump (bxwd) file, you can interactively view it on your X11 workstation by using the Xmovie utility. You can also use Xmovie on the VAX to view any files already created on the Cray. For example, to view a bxwd file named "shuttle.bxwd," enter:

```
$ xmovie -in shuttle.bxwd
```

You can subsequently send your animation files for video recording. For more information, enter:

```
HELP SVFVIDEO
```



Sample animations are available online in the SYS\_PUBLIC directory.

If you require additional information on creating CA-Disspla animation, contact the User Services consultants at extension 2-5405.

### **GRAPHICS CLASSES SCHEDULED FOR JULY 1991**

During July 1991, CTD will offer four graphics classes. The schedule is appended to this *Newsletter*. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of classes and notify attendees of any schedule changes. CTD will reschedule or cancel classes with fewer than six registrants *one week* prior to the scheduled date of the class.

*Using Disspla Graphics with X Window Workstations* (one 1-hour session) is for users who want to learn how to tailor their Disspla programs to work with the X Window driver to produce animation. Familiarity with Fortran and Disspla is necessary.

*Creating Computer Graphics for Video Animation* (one 1-hour session) provides users of Disspla, NCSA X Image, and other graphic programs with an understanding of some characteristics of video animation and guidelines for minimizing or avoiding inherent limitations and artifacts of video recording.

*Creating Images for Imagetool and X DataSlice* (one 3-hour session) demonstrates NCSA Imagetool and X DataSlice for viewing data as raster images. Attendees should have a working knowledge of Fortran or C on the computer of their choice. Topics include C and Fortran programs that create data files for NCSA Imagetool and X DataSlice, data scaling and interpolation, different machines on which NCSA Imagetool and X DataSlice run (Sun, IBM Personal Computer, Apple Macintosh, or any workstation that runs the X Window System), image file transfer to your workstation, and current output capabilities CTD offers.

*Basics of 8-Bit Color Graphics* (one 2-hour session) is for users who want a better understanding of the nature and use of colors on typical workstations and of the techniques for representing data with col-

or and the related pitfalls. This class is of particular interest to, but not limited to, NCSA imaging software users and Disspla users.

## **MANAGEMENT INFORMATION SYSTEMS**

### **INTEGRATED FINANCIAL SYSTEM UPDATE**

On the fourth or fifth working day of each month, the Integrated Financial System (IFS) Project Team submits reports for the Laboratory's financial users. In June 1991, we submitted 1,545 user reports and printed about 4 million lines of output on CTD printers, with most of the printing being done on the IBM 3800 laser printer in CTD. We control the rate at which the reports are submitted and executed to avoid monopolizing the IBM 3084 computer. Printing the reports takes about 36 hours and causes a large backlog on the IBM 3800 laser printer. Computer Operations arranges for other jobs submitted during this two-day or three-day period to have priority on the IBM 3800 laser printer and for IFS report printing to be released when the printer is idle during the day. This action minimizes the delays users will experience in getting output from the IBM 3800 laser printer during this period. For the remainder of 1991, we plan to submit reports on July 5, August 6, September 6, November 6, and December 5. If circumstances permit, we will submit the reports one day early to provide the financial users with their reports as soon as possible. The year-end close schedule for October 1991 is yet to be determined.

In June 1991, the total cost for the 1,545 IFS reports was \$5,937. The average job cost was \$3.84, with 93 percent of the reports costing under \$10 each. Figure 3 shows the cost breakdown.

Progress on all phases of the IFS project will be reported at the Financial Applications Committee to Effect Telesis (FACET) meetings held on the second Wednesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

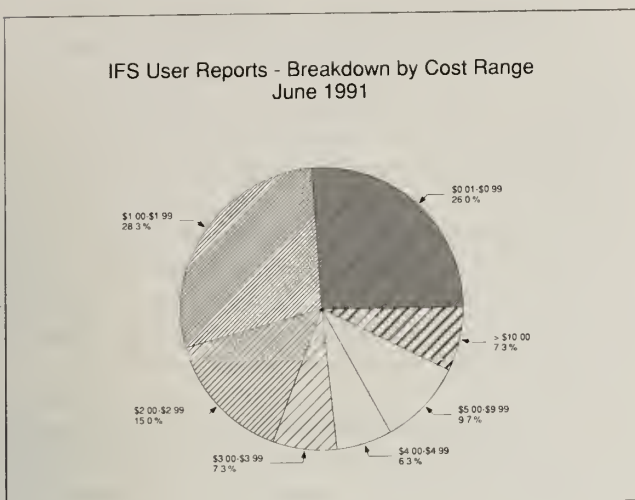


Figure 3: June 1991 IFS Report Cost Breakdown

## MVS NEWS

### MVS/XA CONVERSION UNDER WAY

CTD has started the conversion from MVS/370 to the Multiple Virtual Storage/Extended Architecture (MVS/XA) operating system on the IBM 3084 computer. The MVS conversion follows the successful conversion to the XA version of the Virtual Memory (VM) operating system in May 1991. The conversion to the XA version of MVS will allow larger user programs, provide new functions, and make more efficient use of the IBM 3084 architecture.

Currently, VM and MVS each have half of the IBM 3084 computer. To run MVS and VM together on the entire machine, CTD must configure them with VM/XA in control of the IBM 3084 computer and MVS/XA running under VM/XA as a guest operating system.

CTD anticipates upgrading the existing MVS/370 operating system in preparation for the MVS/XA conversion and will test these changes under VM/XA control on half of the IBM 3084 computer. Work will then proceed on the MVS/XA conversion. An MVS/XA test system should be available by August 1991. A production MVS/XA

system running under VM/XA should be operational by early 1992. A major consideration in timing the move from MVS/370 to MVS/XA is the requirement to avoid any conflicts with the FY1991 year-end and FY1992 start-up activities from August 1991 through November 1991.

To help in the transition to the MVS/XA system, CTD plans to use the flexibility of the VM/XA operating system to provide test and production MVS systems simultaneously without impacting production work. Ample free test time will be available before moving to the production version of MVS/XA. Much of this test time should be available during normal business hours.

## PERSONAL COMPUTING AND WORKSTATIONS

### UPDATED VIRUSCAN AND CLEAN-UP PROGRAMS AVAILABLE

To combat the threat to ANL of viruses that can attack computers that use the MS-DOS operating system, CTD has obtained the latest copy of the Clean-up Version V77 and Viruscan V77 programs. Previously, CTD had purchased a license for 100 copies and has already distributed 75 copies to Argonne's IBM personal computer virus fighting team members. The Clean-up program attempts to remove viral infections from files that cannot be restored from a back-up disk. Version 77 can disinfect over 481 different types of viral infections.

CTD recommends that you check for viruses by using the following procedures:

1. Run the Viruscan program to verify that your files are not infected. When Viruscan completes with the "No Viruses Found" message, no further action is necessary.
2. If Viruscan identifies an infected file, immediately notify Jean Troyer, the Computer Program Protection Manager (CPPM), at extension 2-7440 and follow these steps:
  - a. Locate your most recent back-up copy.
  - i. Delete the infected file.



- ii. Restore it from the previous back-up copy.
- iii. Rerun the Viruscan program to make sure the virus is gone.
- b. If you have no back-up copy:
  - i. Use the CLEAN.EXE program to attempt to resolve the difficulty by eliminating the virus. CLEAN.EXE may not be able to recover all of the infected file. Keep the write protect TAB in place on the Clean-up diskette to prevent possible infection.
  - ii. Review the computer protection plan for your application.
  - iii. Institute a practice of making regular back-ups.

CTD is distributing Viruscan Version 77 and Clean-up Version 77 on one diskette to Argonne's personal computer virus fighting team members. This 5 1/4" diskette, *Viruscan/Clean-Up for IBM PC V77*, is available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

Because our license limits us to 100 copies, we are asking you to obtain your copy directly from the Document Distribution Counter. Please do not make additional copies for further distribution.

#### **ASSISTANCE AVAILABLE FOR OBTAINING PLOTS, SLIDES, AND TRANSPARENCIES FROM CGM AND HPGL FILES**

CTD plans to meet an important need by acquiring additional equipment and software that would easily enable personal computer users to obtain 35mm slides, transparencies, and 36-inch wide plots. The plan would enable personal computer applications that create PostScript output to transmit that output to the desired media.

Currently, CTD provides assistance to personal computer users who need to know how to obtain 35mm slides, transparencies, and 36-inch wide plots by using currently available capabilities. CTD has

had considerable success in obtaining such output from personal computer applications that create output as Computer Graphics Metafile (CGM) or Hewlett-Packard Graphics Language (HPGL) files. Users can transfer CGM files to either CMS or a VAX system and use the **HARDCOPY** command to obtain the desired media. Users can transfer HPGL files to CMS where The Graphics Connection (TGC) software from Computer Associates (CA) can convert those files to CA POP metafiles. Then users can use the **HARDCOPY** command to obtain the desired output.

By using TGC, we have successfully produced PC-generated spreadsheets, spreadsheet charts, project management charts, word processor documents, and Computer-Aided Design (CAD) drawings as slides, transparencies, and plots in color and black and white. Most of our experience has been with the Microsoft Windows 3.0 Excel, Word, and Project software packages. We have limited experience with Generic CADD. Also, we have converted output from the Apple Macintosh Excel spreadsheet software to the PC version of Excel by using the SYLK interchange format and have produced graphical output. (The large format CalComp plotter is useful for printing spreadsheets and project management charts that would require cut-and-paste techniques or special software to print multiple pages correctly on smaller page sizes.)

For more details, see the CMS text file called HPGL DOC on the TGC 1 minidisk or use the **LISTPS** command to print the PostScript version called HPGL LISTPS. To access the TGC 1 minidisk, enter:

```
LINK TGC 1 vaddr
ACCESS vaddr filemode
```

where "vaddr" is any unassigned virtual address and "filemode" is any unassigned filemode letter. For further assistance in converting HGPL files, call Jerry Davison at extension 2-7208. For assistance in transferring CGM files, call the User Services consultants at extension 2-5405.

**NCSA TELNET REQUIRES REVISION TO CONFIG.TEL**

On Monday, June 10, 1991, CTD installed the VAX 6410 computer and changed the Internet addresses of the VAX 6410 computer and the VAX 8700 computer. These changes affected ANL name service for the Laboratory-wide Transmission Control Protocol/Internet Protocol (TCP/IP) network. Name service manages the database of ANL computer nodenames and network addresses that enables workstations and host computers to establish connections. This change requires users of the National Center for Supercomputing Applications (NCSA) Telnet for the Apple Macintosh and IBM personal computers to revise selected lines in the CONFIG.TEL configuration file for NCSA Telnet.

Apple Macintosh users can access the public volume located in PUBLIC ALISATALK to copy the revised CONFIG.TEL file to their own Apple Macintosh folder. Alternately, Apple Macintosh users can use utilities such as Teachtext or Notepad and word processors such as Microsoft Word to make the needed changes.

IBM personal computers can use a word processor or editor to make the needed changes.

Table 1 shows the new statements and the old statements to replace in the CONFIG.TEL file. If your current CONFIG.TEL file does not have the old statements listed in Table 1, it is probably out of date. Contact the User Services consultants at extension 2-5405 to get a new copy.

Table 1: CONFIG.TEL Statements

NEW STATEMENTS	OLD STATEMENTS
name=nameserver	name=sungate
host=dns1	host=sungate
hostip=130.202.20.5	hostip=130.202.20.5
nameserver=1	nameserver=1
name=backupserver	name=backupserver
host=dns2	host=anlcv1
hostip=130.202.20.3	hostip=130.202.20.3
nameserver=2	nameserver=2
name=popeye	
hostip=130.202.20.43	
gateway=2	

**PERSONAL COMPUTER CLASS SCHEDULED FOR JULY 1991**

During July 1991, CTD will offer one personal computer class. The schedule is appended to this *Newsletter*. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of classes and notify attendees of any schedule changes. CTD will reschedule or cancel classes with fewer than six registrants *one week* prior to the scheduled date of the class.

*PC Hard Disk Survival Techniques* (one 1-hour session) is for users who want to learn about the basic hard disk properties of DOS-based computers and to review commercially available software that assists even the novice user with diagnostics, maintenance, and repairs.

**UNIX NEWS**

**MOVIESTAR BYU AVAILABLE ON ACHILLES**

MovieStar BYU (a finite element preprocessing and postprocessing program from Brigham Young University that works with X Window) is now available on the CTD Sunserver, Achilles. MovieStar may be useful to you if you currently use a finite element modeling program that does not have an extensive preprocessing capability (such as solids modeling) or does not provide interactive postprocessing on an X Window display. MovieStar BYU allows you to build complex three-dimensional models that can be displayed as wire frame meshes or shaded solid images. Currently, the program is set to generate input data for several commercially available programs (including ABAQUS, MARC, DYNA, COSMIC NASTRAN, and MCS NASTRAN) or the CAEDOS neutral file format that you can use with your own finite element modeling program. It will postprocess output from the ABAQUS, MARC, and COSMIC NASTRAN programs or the CAEDOS format. You can use the CAEDOS format to describe various types of finite elements and geometric primitives and as input and output for a finite element modeling program. MovieStar also provides a program to translate various file formats to and from the CAEDOS format, including the Initial



Graphics Exchange Specification (IGES) files. A description of the CAEDOS format is provided with the MovieStar documentation, which is available by special order from Account Services (extension 2-5425).

To use MovieStar BYU, you must have a workstation or terminal that has the X Window graphical interface. To start MovieStar, logon to Achilles and set your DISPLAY environment variable to the Internet Protocol (IP) address or network nodename of your X Window terminal or workstation.

For example, set your DISPLAY to romeo.ctd.anl.gov:0.0. In C Shell, enter:

```
% setenv DISPLAY romeo.ctd.anl.gov:0.0
```

In Bourne Shell, enter:

```
$ DISPLAY=romeo.ctd.anl.gov:0.0
$ export DISPLAY
```

To execute MovieStar, enter:

```
movX
```

## BITS & BYTES

### RECENTLY UPDATED AND PUBLISHED DOCUMENTS

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy):

#### Computing and Telecommunications Documents

The *ANL Site Response for the DOE FY1993 Information Technology Resources Long-Range Plan* (ANL/TM 485) is one of many contributions to the DOE information technology resources long-range planning process. It provides data on these resources over an eight-year period consisting of the base year (FY1990), the current year (FY1991), the

budget year (FY1992), the plan year (FY1993), and the out years (FY1994-FY1997). This document consists of four parts: Part 1, "Site Overview," describes the ANL Mission, overall organization structure, the strategic approach toward meeting information technology resource needs, the planning process, major issues, and points of contact. Part 2A, "Software Plan for DOE Contractors," defines the current and planned automated information systems associated with the management of ANL, the stewardship of its resources, and the provision of day-to-day general operations and services. Part 3, "Computing Resources Plan," defines the requirements, resources, acquisitions, and budget for computing at ANL for FY1990 through FY1997. Part 4, "Telecommunications Plan," documents the existing and planned telecommunications resources required at ANL from FY1990 through FY1997. Part 5: "Printing and Publishing Plan" updates the ANL Printing and Publishing Activities Plan (FY1992-FY1994) and contains the FY1990 Printing Activities Reports.

A May 1991 addendum to *CMS at ANL* (ANL/TM 423, REVISION 2) documents the differences between the Virtual Machine/Extended Architecture (VM/XA) operating system and the Virtual Machine/System Product (VM/SP) operating system. The VM/XA operating system allows users to run larger programs (up to 999 megabytes in XA mode), takes advantage of the hardware available on the IBM 3084 computer, and provides for faster input/output (I/O) operations through a separate control program that is responsible only for I/O.

A May 1991 addendum to the *ANL Supplement to the CA-Disspla User's Manual* (ANL/TM 467) documents local changes and installation-dependent options to Computer Associates (CA) Disspla. While CA-Disspla Version 11.0 has been available for some time on the VAX 8700 and is documented within the *Supplement*, it became available only recently on the IBM MVS, IBM CMS, and UNICOS systems.

*Argonne National Laboratory Computing and Telecommunications Division Rates Revised May 24, 1991* lists the processing rates of various computers as well as provides information about the computing services, batch services, and interactive services. Computing rates are determined by the shift in effect (prime, overnight, or weekend) when the job starts. This revised rate sheet supersedes the rate sheet of October 15, 1990.

## University of Chicago Documents

The *University of Chicago Agreements with Personal Computer Vendors* (May 20, 1991) contains the latest lists of personal computer discounts available through the University of Chicago to Argonne employees for both personal and Laboratory purchases. This revised price list supersedes the price list of March 19, 1991.

## Other Vendor Documents

*Viruscan/Clean-Up for IBM PC V77* is a 5 1/4" diskette with the current release of Viruscan and Clean-up, a disinfectant program for the IBM Personal Computer. These programs can detect and correct known viruses (such as Jerusalem B, Fish, Fish6, and Yankee Doodle). CTD requests that you not make copies of these programs for others to use, because our license is limited to 100 copies of each of these programs. Copies of this diskette are available at the Document Distribution Counter. CTD is keeping a master list of all persons to whom these programs have been distributed. This V77 diskette supersedes the V72 diskette.

## USERS GROUP HIGHLIGHTS

### MINUTES OF COMPUTER USERS GROUP MEETING HELD JUNE 4, 1991

Pat Garner (Reactor Analysis) opened the meeting at 3:04 p.m.

**Status of Cray Memory and System Upgrades.** Joe Midlock (Computing and Telecommunications) reported on the upgrade of the Cray X-MP/14 to an X-MP/18. Currently, the Cray engineers are checking the boards with a standalone test system. The plan is to start the changes on Saturday, June 8, 1991, at 7:00 a.m. and to end by Monday, June 10, 1991, at 7:00 a.m. It is possible the system will be up sometime on Sunday. During this period, the MVS station will be up for job submittal, but the Network File System (NFS) service will be down. With the memory upgrade, CTD will institute the job scheduling changes agreed to earlier.

On Monday, June 17, 1991, CTD will install UNICOS 6.0.12, if the system is stable. If there are

no difficulties, it will remain as the production operating system. Users should not need to relink or recompile code to run on the new system. At this time, the cft Fortran compiler is no longer being enhanced and may go away in the future. Currently, the cft77 compiler is the one that receives the enhancements. (See "New Conversion Schedule for UNICOS 6.0" in the June 1991 *Newsletter*.)

**Status of VAX Cluster Upgrades.** Rich Raffentti (Computing and Telecommunications) reported on the upgrades to the VAX cluster. The VAX 6410 is operating, and software configuration is currently under way. On Monday, June 10, 1991, the VAX 6410 will be available to users as ANLCV1. The VAX8700 will be ANLCV2. The systems have equivalent disk accessibility, but are asymmetric with respect to software. The job scheduling will determine which machine the job needs to run on, considering software and load leveling. (See "VAX 6410 Available" in this *Newsletter*.)

**Status of FDDI Activities in CTD and EID.** Tim Kuhfuss (Computing and Telecommunications) reported on the Fiber Distributed Data Interface (FDDI) activities to date and on the plans for extending and connecting it to the Laboratory-wide FDDI. Currently, there is a long-range FDDI between the Environmental Assessment and Information Sciences Division (EID) offsite location and CTD. There is a router at each end of the ring. EID and CTD have their own FDDI ring connected to the long-range ring. The plan is to have an expanded Laboratory-wide FDDI ring eventually. CTD is seeking General Physical Plant (GPP) funds to expand the ring throughout the Laboratory, and divisions will connect their local area networks to the FDDI through a router. Laboratory policy, as recommended by the Computing Policy Committee, requires that each division buys its own router and that CTD will configure and manage the routers. It is hoped an annual purchase agreement can be worked out to simplify the purchase process. CTD is working with vendors to test FDDI interfaces with different equipment. Users with specific equipment they would like to have tested with FDDI should contact the CTD Computer Network Section at extension 2-4360.

The CUG meeting adjourned at 3:37 p.m.

Ken Miles, CUG Secretary



# **MINUTES OF MACINTOSH USERS GROUP MEETING HELD JUNE 12, 1991**

Bob Kampwirth (Materials Science) opened the meeting at 11:04 a.m.

Shelley Frisch (a technical consultant for Apple Computer) presented viewgraphs and provided an actual demonstration of System 7.0, the new operating system for the Apple Macintosh computer. The good news is that System 7.0 is an expansion of the Apple Macintosh environment with some great new features. As one uses it, one will discover many new features that should prove useful. Those things that are done differently look like improvements. However, one may not think that initially as one tries to unlearn old habits. The real downside is having to update those applications that are apparently not compatible with System 7.0. A special Hypercard stack from Apple Computer called Compatibility Checker (available on the CTD Public Volume) can analyze your hard disk and tell you which of your applications, desk accessories, and inits will possibly give difficulties.

The minimum hardware for using System 7.0 with Apple Macintosh computers is 2 megabytes of random-access memory (RAM) and a hard disk. According to Apple Computer, this will leave 750 kilobytes (Apple Macintosh IIcx) to 992 kilobytes (Macintosh Plus) of memory free for an application. This is not a lot of memory for many applications. For example, Excel 3.0 suggests 1536 kilobytes of RAM, and Word 4.0 suggests 512 kilobytes of RAM. Thus, one should review the memory needs of their applications, how many applications need to be open at the same time, and determine how many megabytes of RAM they really need. Apple Computer recommends 3 to 5 megabytes of RAM for multiple applications used at the same time or for one large application.

After August 15, 1991, all Apple Macintosh computers with 2 megabytes of RAM and a hard disk will be shipped from the factory with System 7.0. The final version of System 6.0 is 6.0.8. Starting on July 1, 1991, System 6.0.8 (which is automatically network compatible with System 7.0 products) will be shipped with all Apple Macintosh computers that are not System 7.0 ready.

The basic features of System 7.0 are:

1. A MultiFinder option; it will now be called the Finder.
2. A new form of display where the folders behave like outlines that one can expand or collapse by clicking on a control box in front of the folder name.
3. Virtual memory if one has the necessary hardware, Paged Memory Management Units (PMMUs), and if the application allows it.
4. Outline fonts, called TrueType fonts.
5. Easier to install fonts and desk accessories.
6. An alias feature that allows easy access to a file or application from more than one computer location.

Some special network features are file sharing with InterApplication Communication (IAC) and a data access manager that understands Structured Query Language (SQL). Dave Lifka (Computing and Telecommunications) at extension 2-3251 is now completing sitewide licenses for MacX (X Windows for the Apple Macintosh) and the Hypercard Developer's Kit. They will be available from him at \$20 to \$30 per copy. To comply with license requirements, all persons must get their copy of these software packages directly from Dave. Hypercard 2.0 will also be available from Dave Lifka. As distribution details are worked out, Lee Wagar (Graphic Arts) will send out the information via QuickMail. Dave will work toward a sitewide license for AUX, if there is sufficient interest.

Also, Dave Lifka is working on arranging a sitewide license for System 7.0. Because conflicts between System 6.0 and System 7.0 could cause network difficulties, he will make it available through network managers. The plan is to have all necessary networking software in place by August 1991. When this is done, users will be allowed to migrate to System 7.0. Not all users will have to move to System 7.0; however, if you need its power, it should be accessible by then. If people are on a network, they are requested not to upgrade to System 7.0 on their own. Bob Kampwirth (Materials Science) reported a possible upgrade path from an Apple Macintosh II to an Apple Macintosh IIx at favorable prices in the next few months. If this occurs, an upgrade day could be planned at Argonne.

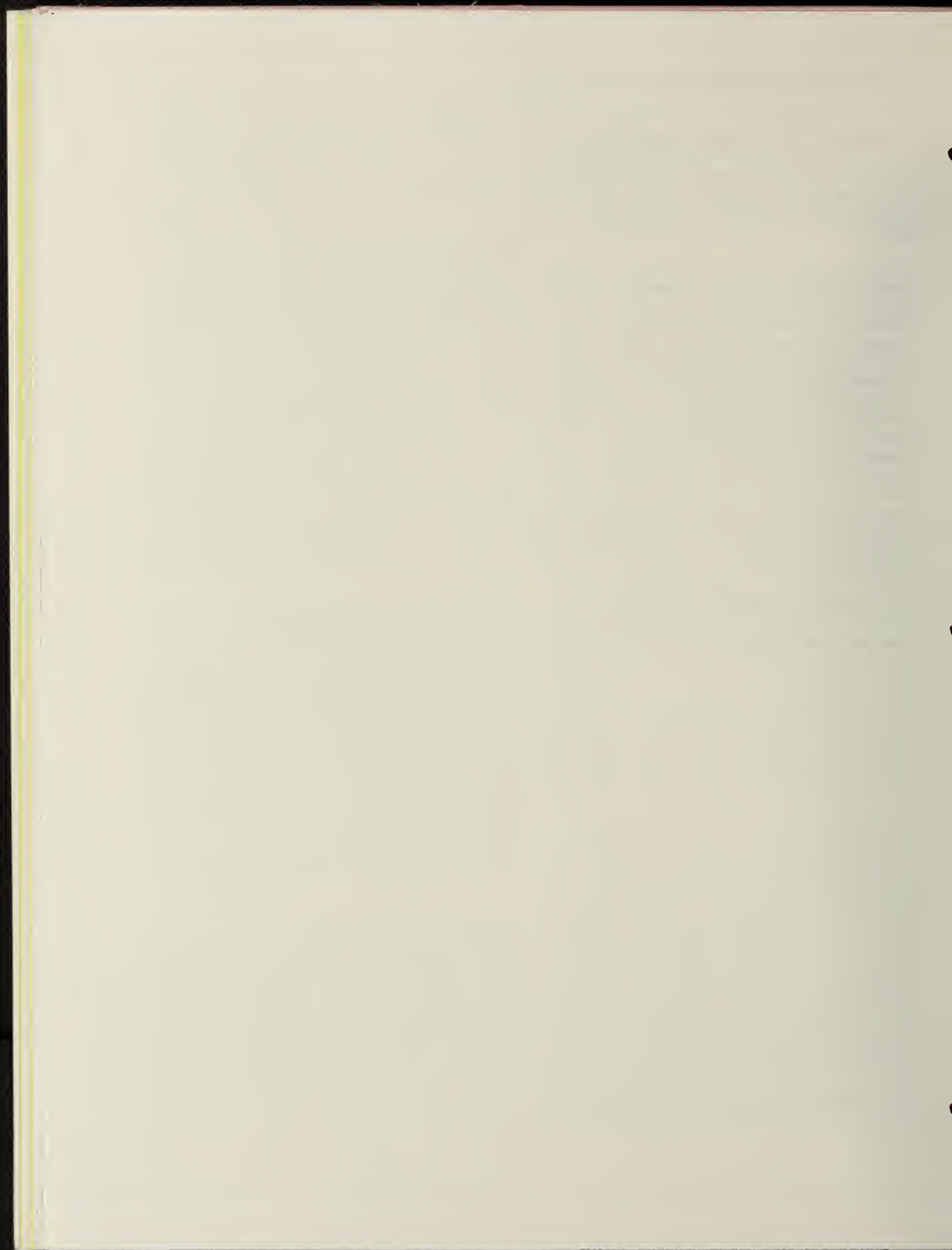
Price estimates for this upgrade range from \$1,600 to \$2,500. Lee Wagar announced that Graphic Arts is looking into the electronic generation of standard ANL forms on the Apple Macintosh. They will be working with Supplies and have DOE approval for this effort.

The Apple Macintosh Users Group normally meets the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. There will be no meeting in July or August 1991. In September 1991, the meetings will resume. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee Wagar (Graphic Arts), Jim Lewellen (Computing and Telecommunications), or Ralph Leonard (Chemical Technology) for further meeting information. Lee Wagar sends out the meeting announcement via QuickMail or E-mail, when possible, and via paper to those who have no electronic mail capabilities. If you have an electronic mail address and are not receiving an electronic meeting announcement, contact Lee Wagar at extension 2-5603 or via QuickMail.

The meeting adjourned at 12:55 p.m.

Ralph Leonard, Macintosh Users Group Secretary





# WORKLOAD STATISTICS (APRIL 30 THROUGH MAY 30, 1991)

## NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	END OF MONTH	ACTIVE DURING MONTH
CMS	1,224	1,203	366
Wylbur	1,657	1,659	313
MVS TSO	57	57	17
CICS	2,231	2,235	168
MVS Batch	2,231	2,235	636
VAX/VMS	617	638	402
Cray	348	354	133
All Systems	2,231	2,235	999

## INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				SESSION TIME (HRS)	CPU TIME (HRS)
	PRIME	NIGHT	WEEKEND	TOTAL		
<b>INTERACTIVE</b>						
CMS	7,006	2,040	875	9,921	27,456.0	74.15
Wylbur	5,963	191	214	6,368	6,575.3	5.14
MVS TSO	403	9	6	418	557.6	1.20
CICS	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
VAX/VMS	17,478	1,998	1,043	20,519	21,695.0	186.44
Cray	775	104	59	938	964.5	12.92
<b>IBM BATCH</b>						
Class U	7,684	1,779	1,016	10,479	n.a.	19.33
Class W	15,136	1,442	617	17,195	n.a.	82.99
Class X	2	497	58	557	n.a.	21.59
Class Y	0	0	1,366	1,366	n.a.	13.50
Nonmain	16,824	2,245	1,121	20,190	n.a.	0.00
Total	39,646	5,963	4,178	49,787	n.a.	137.41
<b>CRAY BATCH</b>						
u	775	104	59	938	n.a.	18.74
w	2,240	225	211	2,676	n.a.	293.64
x	562	119	51	732	n.a.	53.38
y	3,115	1,021	942	5,078	n.a.	162.20
Total	6,692	1,469	1,263	9,424	n.a.	527.96
<b>VMS BATCH</b>						
W BATCH	834	442	135	1,411	n.a.	76.32
X BATCH	18	51	11	80	n.a.	191.33
Y BATCH	1	1	16	18	n.a.	54.02
Total	853	494	162	1,509	n.a.	321.67

## INPUT/OUTPUT

Lines Printed	53,960,003
Local	45,488,942
Remote	37,367,552
Fiche	44,319
Cards Punched-Local Only	6,063
Tape Mounts	4,505
Microfiche Developed	797,577
Microfiche Frames Developed	

## GRAPHICS

	# OF JOBS	# OF FRAMES
CalComp Jobs	71	n.a.
Matrix 35mm Color	116	317
Matrix-8 x 10	7	7
Matrix-Negative	0	0
FR80 Film Plots		
35mm Black/White/Unsprocketed	0	0
35mm Black/White/Sprocketed	0	0
35mm Color	0	0
16mm Black/White/Sprocketed	0	0
16mm Color	0	0

## DATA MANAGEMENT

Tapes Stored	24,608
New Tapes Saved	133
Tapes Released	319
Datasets Exported to Tape	1,141
Datasets Imported from Tape	465

n.a. = not applicable



AVAILABILITY STATISTICS, BY MACHINE (APRIL 30 THROUGH MAY 30, 1991)

	Monthly Totals	Hardware	Scheduled Software	Other	Hardware	Unscheduled Software	Other
CMS							
All Shifts							
Interruptions	2.00	1.00	1.00	0.00	0.00	0.00	0.00
Hrs Unavailable	11.81	1.73	10.08	0.00	0.00	0.00	0.00
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
NYLBR							
All Shifts							
Interruptions	8.00	1.00	5.00	0.00	1.00	1.00	0.00
Hrs Unavailable	6.45	2.06	3.45	0.00	0.85	0.08	0.00
MTF/Unscheduled	368.77				737.55	737.55	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
MVS TSO							
All Shifts							
Interruptions	8.00	1.00	5.00		1.00	1.00	0.00
Hrs Unavailable	10.86	2.06	3.45		0.85	4.50	0.00
MTF/Unscheduled	366.56				733.13	733.13	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
JES3							
All Shifts							
Interruptions	7.00	1.00	5.00	0.00	1.00	0.00	0.00
Hrs Unavailable	5.60	1.83	2.95	0.00	0.81	0.00	0.00
MTF/Unscheduled	738.40				738.40		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
CICS							
All Shifts							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
VAX/VMS (VAX 8700)							
All Shifts							
Interruptions	4.00	3.00	0.00	0.00	0.00	0.00	1.00
Hrs Unavailable	8.36	7.86	0.00	0.00	0.00	0.00	0.50
MTF/Unscheduled	735.63						
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2.00	1.00	0.00	0.00	0.00	0.00	1.00
Hrs Unavailable	1.53	1.03	0.00	0.00	0.00	0.00	0.50
MTF/Unscheduled	274.46						
CRAY							
All Shifts							
Interruptions	5.00	3.00	2.00	0.00	0.00	0.00	0.00
Hrs Unavailable	11.48	9.23	2.25	0.00	0.00	0.00	0.00
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							

COMPUTING CENTER USE IN DOLLARS BY COST CENTER (APRIL 30 THROUGH MAY 30, 1991)

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
ADVANCED PHOTON SOURCE							
130	ADVANCED PHOTON SOURCE DIV	\$225	\$321	\$0	\$331	\$102	\$979
272	ADVANCED PHOTON SOURCE	\$78	\$0	\$0	\$63	\$65	\$205
340	APS DIVISION MANAGEMENT	\$15	\$0	\$0	\$0	\$51	\$66
341	APS ACCELERATOR PHYSICS	\$262	\$2,928	\$1	\$82	\$239	\$3,511
342	APS DIAGNOSTICS	\$0	\$16	\$0	\$0	\$0	\$16
343	APS LINAC	\$0	\$185	\$0	\$13	\$0	\$197
344	APS RF	\$3	\$2	\$0	\$3	\$59	\$66
345	APS VACUUM	\$10	\$1,703	\$1	\$221	\$172	\$2,107
347	APS CONTROLS	\$47	\$1	\$0	\$0	\$6	\$54
348	APS MAGNETS	\$60	\$2	\$0	\$0	\$2	\$64
349	APS POWER SUPPLIES	\$29	\$0	\$0	\$0	\$0	\$29
350	APS DIVISION MANAGEMENT	\$13	\$0	\$0	\$3	\$12	\$24
351	APS INSERTION DEVICES	\$49	\$67	\$0	\$0	\$18	\$136
352	APS BEAM LINE FRONT ENDS	\$74	\$1,304	\$0	\$401	\$1,516	\$3,295
353	APS BEAM LINE INSTRUMENTATION	\$16	\$228	\$0	\$139	\$604	\$987
360	APS CONVENTIONAL FACILITIES	\$25	\$0	\$0	\$24	\$0	\$49
361	APS PROJECT DIRECTION	\$28	\$0	\$0	\$0	\$26	\$54
362	APS MANAGEMENT GENERAL	\$16	\$0	\$0	\$0	\$129	\$145
SUBTOTAL		\$950	\$6,756	\$1	\$1,278	\$3,001	\$11,986
ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH							
110	BIO & MED RES DIV	\$1,584	\$802	\$95	\$1,440	\$1,658	\$5,579
125	TECHNOLOGY TRANSFER CENTER	\$51	\$0	\$0	\$0	\$114	\$165
149	ENVIRONMENTAL RESEARCH DIV	\$3,781	\$208	\$123	\$1,248	\$945	\$6,305
155	ENERGY SYSTEMS DIVISION	\$4,585	\$2,134	\$1,073	\$2,481	\$2,170	\$12,443
165	ENV ASSESS & INFO SCI DIV	\$2,077	\$4,148	\$90,905	\$266	\$3,287	\$100,684
174	ENER/ENV/BIO PROG DIR	\$11	\$0	\$0	\$0	\$101	\$113
246	ES-NAT'L ENERGY SOFTWARE CTR	\$84	\$0	\$1	\$621	\$555	\$1,260
274	ENER/ENV/BIO RES PROG ADM	\$108	\$0	\$0	\$14	\$216	\$338
SUBTOTAL		\$12,281	\$7,292	\$92,197	\$6,069	\$9,047	\$126,886
ENGINEERING RESEARCH							
102	EBR-II PROJECT-ANL WEST	\$2,238	\$20	\$1,324	\$2,196	\$116	\$5,894
104	FUELS AND PROCESSES	\$1,894	\$63	\$163	\$176	\$227	\$2,522
107	CHEMICAL TECHNOLOGY DIVISION	\$601	\$355	\$0	\$582	\$606	\$2,144
112	REACTOR ENGINEERING	\$7,222	\$1,159	\$4,958	\$3,091	\$2,146	\$18,575
114	MATLS & COMP TECH DIV	\$4,031	\$5,444	\$772	\$2,915	\$1,878	\$15,041
115	ENGINEERING PHYSICS DIVISION	\$5,271	\$1,645	\$5,991	\$2,395	\$1,775	\$17,076
116	REACTOR ANALYSIS	\$28,190	\$7,073	\$68,612	\$12,499	\$11,289	\$127,663
117	APPLIED PHYSICS-ANL WEST	\$1,705	\$74	\$13,090	\$205	\$700	\$15,773
118	REACTOR EXP & EXAM DIV	\$1,260	\$7,271	\$4	\$222	\$12,481	\$21,239
119	ANALYTICAL LABORATORY ANL-WES	\$0	\$0	\$0	\$0	\$-100	\$-100
171	ENGRG RES PROG DIR	\$3	\$0	\$0	\$0	\$106	\$109
197	SPECIAL PROJECTS OFFICE	\$261	\$1	\$0	\$8	\$153	\$424
211	ENGINEERING PHYSICS DIVISION	\$65	\$12	\$0	\$24	\$3,073	\$3,174
269	CHEM TECH DIV-ANALYTICAL CHEM	\$62	\$9	\$0	\$3	\$109	\$183
271	ENGRG RES PROG ADMIN	\$181	\$0	\$0	\$10	\$320	\$511
SUBTOTAL		\$52,984	\$23,126	\$94,914	\$24,326	\$34,879	\$230,228
PHYSICAL RESEARCH							
105	MATERIALS SCIENCE DIVISION	\$856	\$11,176	\$13,168	\$1,795	\$513	\$27,508
109	PHYSICS DIV	\$2,320	\$823	\$25	\$1,509	\$710	\$5,387
120	CHEMISTRY DIV	\$731	\$7,607	\$13,752	\$641	\$912	\$23,643
136	INT PULSE NEUT SOURCE PROG	\$97	\$915	\$6,334	\$401	\$249	\$7,996
137	HIGH ENERGY PHYSICS DIV	\$504	\$1,494	\$3,475	\$987	\$910	\$7,370
139	DIV OF EDUCATIONAL PROGRAMS	\$218	\$10	\$0	\$67	\$158	\$452
145	MATHEMATICS & COMPUTER SCI DI	\$118	\$292	\$1,310	\$1,668	\$4,586	\$7,975
146	CTD DIV - SCI APPL & RES	\$31	\$4	\$31	\$10	\$3	\$78
273	PHYSICAL RESEARCH PROGRAM ADM	\$82	\$0	\$0	\$21	\$151	\$254
SUBTOTAL		\$4,957	\$22,320	\$38,095	\$7,099	\$8,192	\$80,663
EXTERNAL							
751	FERMI NATIONAL LABORATORY	\$646	\$0	\$0	\$267	\$539	\$1,453
752	NAVY	\$9,914	\$0	\$0	\$1,577	\$5,663	\$17,154
753	MORGANTOWN ENERGY TECH CENTER	\$12	\$0	\$0	\$0	\$0	\$12
754	DEPARTMENT OF ENERGY AT ANL	\$0	\$13	\$0	\$23	\$0	\$37
760	ABBOTT LABORATORIES	\$5	\$0	\$54	\$0	\$0	\$59
763	GENERAL ELECTRIC COMPANY	\$0	\$1	\$0	\$0	\$0	\$1
766	BECHTEL NATIONAL, INC.	\$0	\$62	\$46	\$0	\$0	\$110
775	SMITHSONIAN	\$0	\$0	\$0	\$1	\$1	\$4
777	UNIVERSITY OF CHICAGO AT ANL	\$20	\$0	\$0	\$151	\$0	\$171
778	ARGONNE CREDIT UNION	\$6	\$0	\$0	\$0	\$0	\$6
779	UNIVERSITY OF ILLINOIS AT CHI	\$6	\$0	\$0	\$0	\$0	\$6
780	NEW BRUNSWICK LABORATORY	\$13	\$0	\$0	\$0	\$0	\$13
781	STATE OF ILL. DEPT. MENTAL HE	\$0	\$0	\$0	\$0	\$2	\$2
782	PACKER ENGINEERING	\$0	\$58	\$0	\$4	\$5	\$63
783	WEST VALLEY NUCLEAR SERVICES	\$1,962	\$0	\$0	\$1	\$78	\$2,051
784	SUPERCONDUCTING SUPER COLLIDER LABS	\$0	\$53	\$143	\$10	\$0	\$206
SUBTOTAL		\$12,588	\$187	\$244	\$2,044	\$6,299	\$21,362



CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
			OPERATIONS				
143	SUPP SERV DIV - ELEC DEPT	\$201	\$8	\$0	\$297	\$356	\$862
148	HUMAN RESOURCES-MEDICAL DEPT	\$820	\$0	\$0	\$79	\$412	\$1,311
150	SUPPORT SERV DIV - SPEC MATLS	\$261	\$0	\$0	\$36	\$197	\$494
161	TECH INFO SERVICES DEPT	\$544	\$11,877	\$0	\$2,584	\$871	\$15,876
201	OFFICE OF THE DIRECTOR	\$332	\$0	\$0	\$147	\$134	\$613
202	OFC OF CHIEF OPER OFCR	\$15	\$0	\$0	\$89	\$101	\$205
210	SUPP SERV DIV - CENT SHOPS	\$406	\$0	\$0	\$74	\$540	\$1,021
216	SUPPORT SERVICES DIVISION	\$208	\$0	\$0	\$40	\$157	\$405
222	PLANT FAC & SERV-LODGING FAC	\$0	\$0	\$0	\$0	\$100	\$100
232	SUPPORT SERV DIV - SECURITY	\$301	\$0	\$0	\$0	\$152	\$453
234	SUPP SERV DIV-HEALTH PHY	\$393	\$12	\$0	\$31	\$184	\$620
235	SUPP SERV DIV-ENV SAFE HEALTH	\$1,080	\$42	\$0	\$139	\$449	\$1,710
236	SUPPORT SERV DIV - FIRE DEPT	\$4	\$0	\$0	\$0	\$101	\$105
245	COMPUTING AND TELECOM DIV	\$20,667	\$0	\$0	\$3,805	\$2,968	\$27,440
247	COMP & TEL DIV - COM SERV	\$2,146	\$0	\$0	\$392	\$1,451	\$3,990
260	SUPP SERV DIV-GRAPHIC ARTS	\$310	\$393	\$0	\$76	\$486	\$1,265
265	ELECTRONIC PUBLISHING SERVICE	\$1	\$1	\$0	\$0	\$0	\$2
275	OFFICE OF PUBLIC AFFAIRS	\$689	\$0	\$0	\$59	\$185	\$932
276	OFC PUB AF - MOTN PIC UNIT	\$36	\$0	\$0	\$0	\$17	\$53
296	TELECOM COST/RECOVERY	\$0	\$0	\$0	\$0	\$55	\$55
315	SUPP SERV DIV-MATLS & SERV	\$3,302	\$0	\$0	\$1,037	\$545	\$4,883
316	PLANT FAC & SERV-VEH MAINT	\$0	\$0	\$0	\$0	\$178	\$178
317	PLANT FAC & SERV-DRIVE/RIG SER	\$14	\$0	\$0	\$1	\$100	\$115
319	SUPP SERV DIV-TRAVEL OFC	\$3	\$0	\$0	\$57	\$100	\$160
322	SUPP SERV DIV-PROCUREMENT	\$37	\$1	\$0	\$0	\$103	\$141
333	QA, ENVIR & SAFETY OFC	\$71	\$1	\$0	\$16	\$201	\$288
336	SUPP SERV DIV - INSPECTION	\$9	\$2	\$0	\$0	\$2	\$13
400	OFC OF CHIEF FIN OFFICER	\$43,300	\$0	\$0	\$3,178	\$11,104	\$57,582
401	ACCOUNTING	\$0	\$0	\$0	\$53	\$100	\$153
402	OFC CHIEF FIN OFCR-DATA ENTRY	\$10	\$0	\$0	\$150	\$0	\$160
403	BUDGET OFFICE	\$0	\$0	\$0	\$0	\$100	\$100
410	HUMAN RESOURCES DEPARTMENT	\$10,465	\$0	\$0	\$1,128	\$1,802	\$13,395
412	AFFIRM ACTION PROGRAM	\$58	\$0	\$0	\$48	\$101	\$207
501	PLANT FAC & SERV-BLDG MAINT	\$45	\$0	\$0	\$46	\$375	\$466
502	PLANT FAC & SERV-INSTALLATION	\$38	\$0	\$0	\$5	\$100	\$143
503	PLANT FAC & SERV-GROUNDS	\$0	\$0	\$0	\$0	\$100	\$100
504	PLANT FAC & SERV-CUSTODIAL	\$8	\$0	\$0	\$0	\$100	\$109
505	PLANT FAC & SERV-WASTE MGMT O	\$55	\$0	\$0	\$110	\$100	\$265
506	PLANT FAC & SERV-PLANT MGR OF	\$325	\$0	\$0	\$10	\$314	\$649
510	PLANT FAC & SERV-UTILITY SYST	\$0	\$0	\$0	\$0	\$100	\$100
512	PLANT FAC & SERV-FAC PLNG/ENG	\$386	\$0	\$0	\$22	\$148	\$557
530	SITE MGRS OFC-ANL WEST	\$70	\$5	\$0	\$2	\$104	\$181
531	PERSONNEL-ANL WEST	\$109	\$0	\$0	\$53	\$100	\$262
532	SPECIAL MATLS-ANL WEST	\$814	\$0	\$0	\$150	\$323	\$1,287
533	ACCOUNTING-ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
534	PURCHASING-ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
535	SECURITY - ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
536	SAFETY STAFF-ANL WEST	\$147	\$0	\$0	\$0	\$102	\$249
537	INFORMATION SERVICE-ANL WEST	\$0	\$15	\$0	\$5	\$100	\$120
538	MATLS HANDLING-ANL WEST	\$87	\$0	\$0	\$17	\$100	\$204
548	ANL WEST GENERAL EXPENSE	\$78	\$0	\$0	\$58	\$0	\$136
550	COMPUTER APPL & SERV - ANL-W	\$102	\$32	\$0	\$20	\$101	\$256
551	RAD MONITORING-ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
554	MACHINE SHOP-ANL WEST	\$31	\$0	\$0	\$8	\$100	\$139
556	SITE ENGRG-ANL WEST	\$105	\$0	\$0	\$17	\$100	\$222
557	PLANT SERVICES-AW-SERVICE REQ	\$36	\$2	\$0	\$5	\$100	\$143
558	PLANT SERVICES-AW-FUNCTION	\$3	\$0	\$0	\$0	\$0	\$3
561	OFC OF QUALITY ASSURANCE - AW	\$3	\$0	\$0	\$0	\$101	\$104
		-----	-----	-----	-----	-----	-----
SUBTOTAL		\$88,128	\$12,389	\$0	\$14,108	\$26,368	\$140,994
		-----	-----	-----	-----	-----	-----
TOTAL		\$171,888	\$72,070	\$225,452	\$54,925	\$87,785	\$612,120

## COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	Onsite (Illinois)	Onsite (Idaho)	Offsite (Area Code 708)
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	n.a.	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		

### CICS, CMS, Wylbur, and TSO Interactive Computing Services

IBM 3270 Protocol Converter	2-3270	n.a.	
1200 to 19.2K Bits Per Second (Onsite)			972-3270
1200 to 2400 Bits Per Second (Offsite)			972-3219
9600 to 19.2K Bits Per Second (Offsite)			
X.25 Terminal Multiplexor	2-2525	n.a.	
300 to 19.2K Bits Per Second (Onsite)			972-2525
1200 to 2400 Bits Per Second (Offsite)			972-2519
9600 to 19.2K Bits Per Second (Offsite)			n.a.
IBM 3174 Cluster Controller	2-3174	n.a.	
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	n.a.	972-2212
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	n.a.	972-7612
300 Bits Per Second	2-7603*	n.a.	972-7603*

\* When using a 300 bits per second modem, you must use a capital "P" to logon.

### Batch Remote Job Entry Service

2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573

### Central DEC VAX 8700

1200 to 19.2K Bits Per Second (Onsite)	2-8700	n.a.	
1200 to 2400 Bits Per Second (Offsite)			972-8700
9600 to 19.2K Bits Per Second (Offsite)			972-8745

### Argonne TCP/IP Network

1200 to 19.2K Bits Per Second (Onsite)	2-5588	n.a.	
1200 to 2400 Bits Per Second (Offsite)			972-5588
9600 to 19.2K Bits Per Second (Offsite)			972-4726

### Argonne MFEnet Dial-Up

300 to 19.2K Bits Per Second	2-7920	n.a.	972-7920
------------------------------	--------	------	----------

### Tymnet Commercial Packet-Switching Network

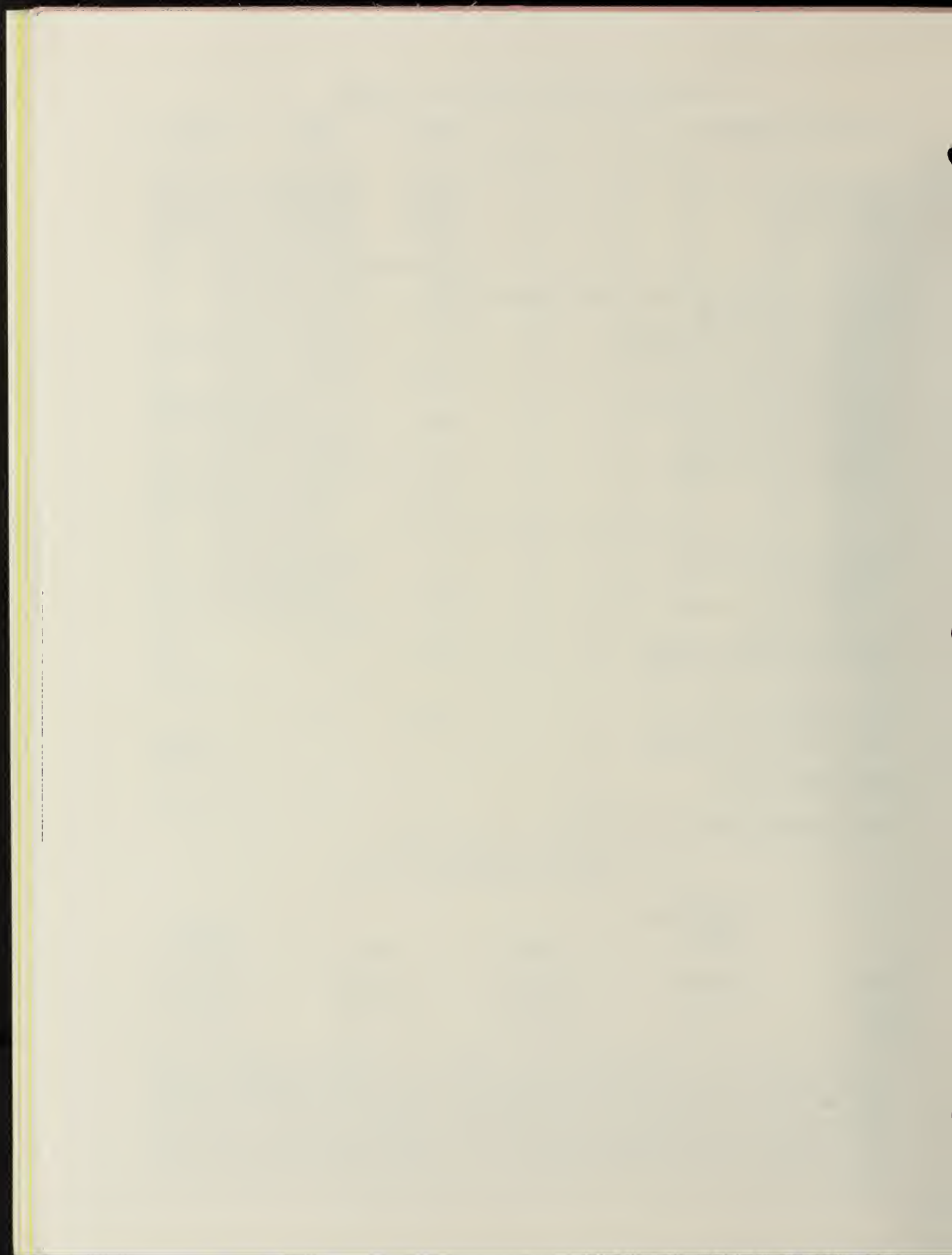
Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.

## COMPUTING CENTER SERVICE SCHEDULE (All Times Are Central Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	VM/XA	VMS	MFEnet Gateway
Monday to Thursday	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

\*\* Except for the interruption of UNICOS from 4:00 a.m. until 8:00 a.m. on Mondays for maintenance, service continues uninterrupted past 4:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 3:00 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 3:00 p.m. before making plans that require the availability of a service the following morning.





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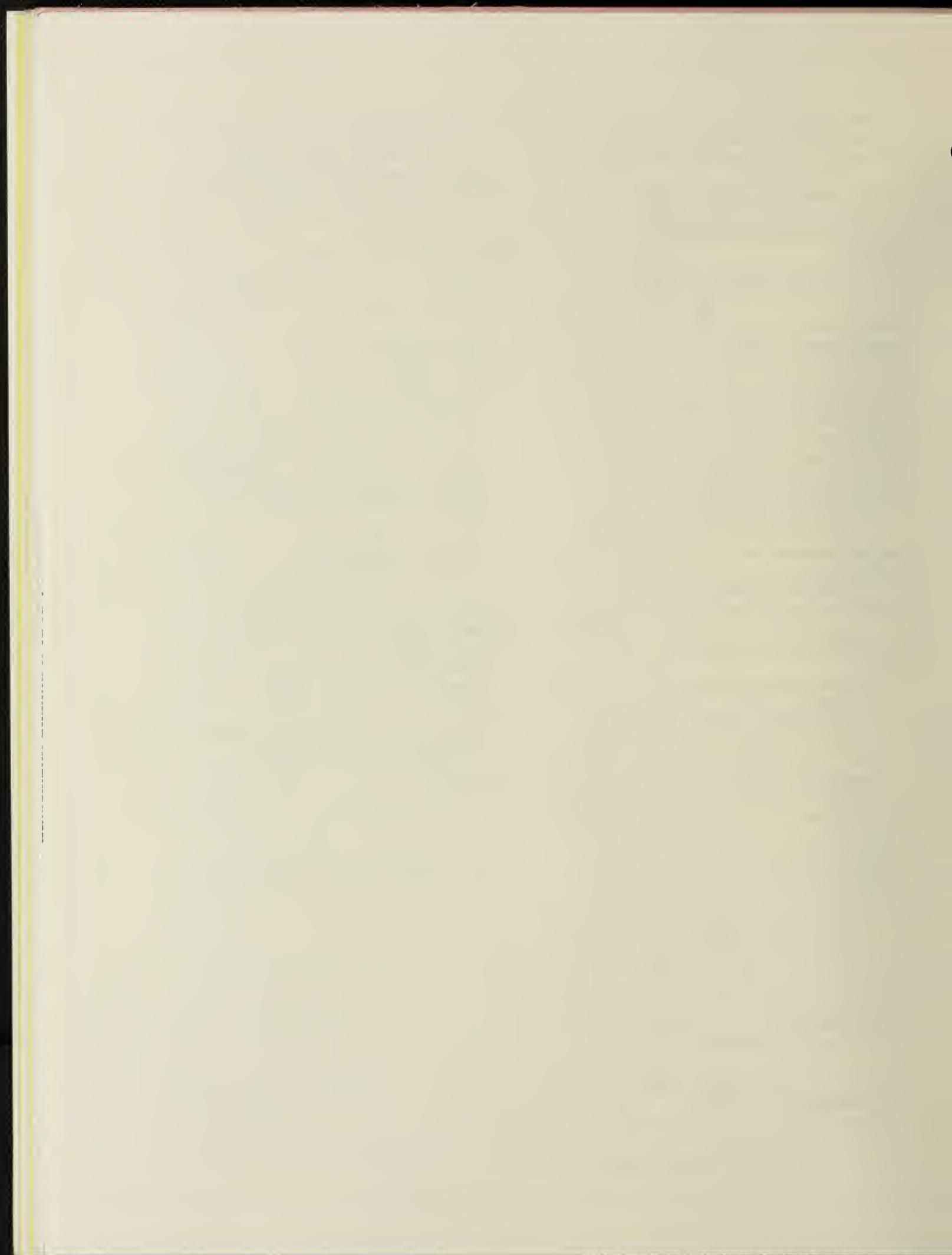
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Argonne National Laboratory  
Computing and Telecommunications Division  
July 1991

## COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering five classes. There is no charge for attending classes, unless otherwise indicated. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the class and notify attendees of any schedule changes. CTD will reschedule or cancel any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

### USING DISSPLA GRAPHICS WITH X WINDOW WORKSTATIONS

Goal:	To learn how to tailor your Disspla programs to work with the X Window System to produce animation.
Length of Class:	One hour
Date and Time:	July 16, 1991 (Tuesday), 9:30 a.m. to 10:30 a.m.
Location:	Building 221, Room A-261
Requirements:	Familiarity with Fortran and Disspla
Instructor:	Dave Leibfritz

### CREATING COMPUTER GRAPHICS FOR VIDEO ANIMATION

Goals:	To learn some characteristics of video animation. To learn guidelines for minimizing or avoiding inherent limitations and artifacts of video recording.
Prerequisite:	Familiarity with NCSA Image or the Disspla X Window animation program, Xmovie, or both.
Length of Class:	One 1-hour session
Date and Time:	July 16, 1991 (Tuesday), 10:30 a.m. to 11:30 a.m.
Location:	Building 221, Room A-261
Instructor:	John Rowlan



## CREATING IMAGES FOR IMAGETOOL AND X DATASLICE

Goals:	To learn what capabilities the National Center for Supercomputing Applications (NCSA) Imagetool and X DataSlice programs provide for visual data analysis. To learn how to create Fortran or C programs to convert your data into the format required by these programs.
Prerequisite:	Working knowledge of C or Fortran
Length of Class:	One 3-hour session
Date and Time:	July 23, 1991 (Tuesday), 9:00 a.m. to noon
Location:	Building 221, Room A-261
Suggested Reading:	<i>NCSA Image for the Color Macintosh Version 2.0</i> <i>NCSA X Image for the X Window System Version 1.0</i> <i>NCSA X DataSlice for the X Window System Version 1.0</i> <i>NCSA HDF Calling Interfaces and Utilities Version 3.1</i>
Instructor:	Dave Lifka

## BASICS OF 8-BIT COLOR GRAPHICS

Goal:	To learn about the nature and use of color and color look-up tables on typical workstations. To learn techniques for representing data with color and the related pitfalls.
Prerequisite:	Of particular interest to, but not limited to, NCSA imaging software users and Disspla users
Length of Class:	Two hours
Date and Time:	July 23, 1991 (Tuesday), 2:00 p.m. to 4:00 p.m.
Location:	Building 221, Room A-261
Instructor:	Fred Dech

## PC HARD DISK SURVIVAL TECHNIQUES

Goal:	To learn about the basic hard disk properties of DOS-based computers. To learn about commercially available software that assists even the novice user with diagnostics, maintenance, and repairs.
Prerequisite:	Anyone who has ever sensed impending data doom.
Length of Class:	One hour
Date and Time:	July 24, 1991 (Wednesday), 2:00 p.m. to 3:00 p.m.
Location:	Building 221, Room A-216
Instructor:	Jim Regula

## COMPUTER-BASED TRAINING COURSES

Currently, CTD offers one computer-based training course in CMS and five courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

### IBM CBT Course

(Enter SLFTEACH at the CMS prompt.)

SLFTEACH

Introduction and Advanced Concepts of Xedit

### DEC CBT Courses on the Central VAX 8700

(Enter RUN "course name" at the DCL level.)

Course Name

Course Title

VMSCAI

Introduction to VAX/VMS

LSECAI

Introduction to the Language Sensitive Editor

EVECAI

Introduction to the Extensible VAX Editor

DTRCAI

Datatrieve for Users

DTRPCAI

Datatrieve for Programmers





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22/8

# ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division

VOLUME 22

NUMBER 8

AUGUST 1991

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Computing Center Classes

AUG 16 1991

UNIVERSITY OF ILLINOIS



"First Among Equals"

Only you can do it !



# COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory

Building 221

Argonne, Illinois 60439-4844

FAX: 708-972-5983

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

		Room	Phone	Electronic Mail Address
Division Director	David Weber	A251	2-7155	B22788 AT ANLVM
Computer Protection Program Manager	Jean Troyer	A237	2-7440	B18216 AT ANLVM
Computing and Telecommunications Operations	Larry Amiot	B243	2-5432	B10523 AT ANLVM
Computer Network	Bob McMahon	B239	2-7270	B17385 AT ANLVM
Data Communications	Linda Winkler	B251	2-7236	B32357 AT ANLVM
Service Engineering	Paul Phillips	D118	2-4343	B36679 AT ANLVM
	Vern Tantillo	C112	2-4181	B06434 AT ANLVM
Computer Operations	Gary Schlesselman	A113	2-5437	B09819 AT ANLVM
Day and Weekend Operation	Bob Bilshausen	A134	2-5421	
Document Distribution Counter		A134		
Evening and Overnight Operation	Mike Monczynski	A134	2-5421	
Tape Librarian	Sandra Vasko	A134	2-7681	B18669 AT ANLVM
Systems Programming	Doug Engert	B231	2-5444	B17783 AT ANLVM
Telephone Services	Allen Winter	B247	2-2764	B07059 AT ANLVM
User Services	Fred Moszur	A121	2-7419	B27564 AT ANLVM
Computer Use Authorizations	Fran Carnaghi	A147	2-5425	B27596 AT ANLVM
Consultants		A139	2-5405	CONSULT AT ANLVM
Documentation Advice		A139	2-5405	CONSULT AT ANLVM
Education and Assistance	Pete Bertocini (Acting)	E101	2-4827	B15013 AT ANLVM
Management Information Systems	Diane O'Brien	B151	2-7167	B26424 AT ANLVM
Financial Systems	Nick Moore	D239	2-8075	B31048 AT ANLVM
Human Resource Systems	Bob Hischier	B147	2-7272	B22639 AT ANLVM
Information and Production Services	Miriam Bretscher	B139	2-7252	B26187 AT ANLVM
Materials and Plant Systems	Rich Slade	B159	2-7329	B32848 AT ANLVM
Planning, Finance, and Administration	Mike Boxberger	A245	2-5638	B34540 AT ANLVM
Scientific Applications and Research	Charles Mueller	A231	2-7153	B11284 AT ANLVM

The Division operates a Cray X-MP/18 with UNICOS 6.0.12, a Sun 3/280 gateway, a central VAX cluster (a DEC VAX-11/750, a DEC VAX 8700, and a DEC VAX 6410) with VMS 5.4, an IBM 3084QX9, and three Hewlett-Packard 3000 minicomputers. Software on the IBM computers includes VM/XA SP 2.1 with CMS Release 5.6, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E) Release 1.3.0, and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 708-972-5415.

The *Argonne Computing Newsletter* is published monthly by the Computing and Telecommunications Division, Argonne National Laboratory, Argonne, Illinois 60439; edited, prepared, and formatted by April Heiberger with CMS, Waterloo Script, and the Linotype L300P typesetter. This *Newsletter* was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

## COMPUTING COMMENTS

### NSFNET T3 LINK OPERATIONAL

In July 1991, the National Science Foundation completed installation of a major National Science Foundation network (NSFnet) switching node at Argonne. This switching node is connected to the NSFnet backbone at a 1.544 megabits per second transmission speed. For the installation, CTD coordinated the efforts of two NSFnet subcontractors, MCI and IBM, and supplied the routing coordination for the Transmission Control Protocol/Internet Protocol (TCP/IP) packets routed to NSFnet.

NSFnet was established to provide researchers and educators access to state-of-the-art resources (including NSF-funded supercomputer centers, national databases, library collections, satellite data, and other advanced capabilities). Some other major NSFnet sites include the Cornell Supercomputing Center, the Georgia Institute of Technology, the Massachusetts Institute of Technology, the National Center for Supercomputing Applications, the Pittsburgh Supercomputing Center, and the San Diego Supercomputer Center. (See "ANL To Join NSFnet" in the July 1990 *Newsletter*.)

The installation required MCI, the NSFnet backbone carrier, to install multiple DS3 microwave channels connecting Argonne to MCI in Downers Grove, Illinois. MCI installed this equipment on the roof and inside Building 221. IBM installed the switching node in Building 221 (a RS6000-930 server computer).

Initially, the NSFnet switching node will be connected to the Laboratory-wide Ethernet. In approximately two months, the node will be connected to the Laboratory-wide Fiber Distributed Data Interface (FDDI) network, which will allow very high-speed file transfers.

Hundreds of computers and workstations at the Laboratory use external networking connections in their collaborative work. Routing of packets to NSFnet sites will now be direct, which will allow higher data transfer rates and more reliability. Formerly, packets destined to NSFnet were routed through gateways, which resulted in higher data transit times.

The NSFnet node at Argonne also serves as a major hub for Chicago-area universities and universities in the Midwest region. The University of Illinois at Chicago, Northwestern University, the University of Wisconsin, and Michigan State University, members of the Consortium for Institutional Cooperation Network (CICNet) have links to Argonne and use the NSFnet switching node at Argonne as their route to NSFnet.

### COMPUTING CENTER LABOR DAY HOLIDAY SCHEDULE

The CTD computing systems will remain in operation with at least one operator in attendance throughout the Labor Day 1991 holiday to provide services comparable to the normal weekend services. A computer operator will be available to mount tapes; to check personal tapes in and out; and to process and distribute output from the IBM 3800 laser printer, the IBM impact printer, the CalComp 5835XP color plotter, and microfiche.

All interactive and batch computing will be available at weekend and holiday rates from 7:00 a.m. on Saturday, August 31, 1991, until 7:00 a.m. on Tuesday, September 3, 1991. For information about unexpected changes in service, call the Current System Status Recorded Message at extension 2-5466. For assistance in accessing scheduled services or to report difficulties, call the computer operator on duty at extension 2-5421.

### COMPUTING CLASSES SCHEDULED FOR SEPTEMBER 1991

During September 1991, CTD will offer seven classes. The schedule is appended to this *Newsletter*. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of classes and notify attendees of any schedule changes. CTD will reschedule or cancel classes with fewer than six registrants *one week* prior to the scheduled date of the class.

*Introduction to Computing Facilities and Services* (one 3-hour session) provides an overview of the computing facilities and services available at Argonne. New Argonne computer users, as well as



anyone else interested in computing at Argonne, should attend this class.

*Introduction to VAX/VMS* (one 3-hour session) is for first-time VAX/VMS users who need an overview of the features available in VAX/VMS. Attendees will become familiar with available VMS documentation and will learn how to logon to VMS, to create files, to set up sub-directories, to compile and link programs, to submit batch jobs, and to use the online HELP facilities. Also, attendees will learn how to access the companion computer-based instruction courses, "Introduction to VAX/VMS" and "Introduction to the Extensible VAX Editor." Everyone registering for this class should request an account on the CTD VAX cluster before attending the class to access the computer-based instruction courses. To request an account, call Account Services at extension 2-5425.

*Introduction to Unix* (three 3-hour lectures with three 1-hour labs) is an overview of the Unix operating system. Scientific computing users will need some familiarity with Unix to use the Cray X-MP, new scientific workstations, and future advanced architecture computers. Attendees will become familiar with using the file system; changing file permissions; using the vi editor; using mail; configuring the user environment; creating, compiling, and executing programs; using job and process control; using the Transmission Control Protocol/Internet Protocol (TCP/IP); using good computer protection practices; and using many useful commands. CTD will establish temporary accounts on the CTD Sun Unix server for attendees for the duration of the class. The class will entail the use of Unix from ASCII terminals to reinforce the lecture content.

*Programming in VAX/VMS* (one 3-hour session) acquaints VMS users with features of VMS. Topics include programming VAX Fortran; writing DCL (Digital Command Language) procedures; using the VMS system debugger, the runtime library, and system services; and reviewing VMS internals.

*Introduction to UNICOS* (one 3-hour session) is for new users who want basic information on UNICOS on the Cray X-MP/18 high-performance computer. The class will review material covered in the *Introduction to Unix* class and will cover shell programming, Network Queuing System (NQS) job submission, and management of Cray files from the IBM MVS front-end station or from scientific work-

stations via Transmission Control Protocol/Internet Protocol (TCP/IP).

*Introduction to Wylbur for MVS Batch Computing* (one 3-hour lecture with lab) explains how to use Wylbur, an efficient easy-to-learn interactive editing system ideally suited for users of the IBM MVS batch computing system. You can use Wylbur interactively to create and modify programs, data, and text; to submit IBM MVS and Cray UNICOS batch jobs; and to review IBM MVS and Cray UNICOS batch output.

*Using CMS with IBM 3270-Compatible Display Terminals* (two 3-hour lectures with labs) is for CMS users of IBM 3270-compatible display terminals, IBM or Apple Macintosh personal computers with NCSA tn3270, or ASCII terminals with the Hydra Protocol Converter. This class is for people who send or receive electronic mail; who organize information in files and obtain information from files; who create and modify data, programs, or text files; or who use applications packages such as Cuechart, SAS, Script, and Tellagraf. The labs use ASCII terminals with the Hydra Protocol Converter, but the principles learned will apply to all the terminals and access methods mentioned above. Everyone registering for the CMS class must have a CMS account before attending the class. To request an account, contact Account Services (Building 221, Room A-147, extension 2-5425).

## CRAY NEWS

### INTERACTIVE PROCESS LIMIT IMPLEMENTED IN UNICOS 6.0

To encourage users to run their long Cray jobs in batch under the Network Queuing System (NQS), CTD has implemented a one-hour CPU time limit for interactive processes. UNICOS will terminate any process not initiated via NQS that exceeds this limit. CTD encourages the use of NQS batch jobs, because system throughput and responsiveness can be better managed and interactive processes cannot be checkpointed when the Cray is shut down.

To learn how to submit and monitor NQS batch jobs from the Cray and from a variety of front-end systems at ANL, see the *ANL Supplement to the*

*UNICOS Primer* (ANL/TM 460), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

### NEW LOCAL UNICOS USER'S GUIDE AVAILABLE

CTD has just published an *ANL Supplement to the UNICOS Primer* (ANL/TM 460). This document introduces the Cray X-MP interactive and batch services available at Argonne. It serves as a companion to the *UNICOS Primer* (SG-2010 6.0), discussing those issues specific to Cray computing at ANL. These documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies).

The *ANL Supplement to the UNICOS Primer* supersedes the 1988 *Guide to UNICOS at ANL*, which was distributed as ANL/TM 460 in draft form only. The purpose of the *Supplement* and the *Primer* is to get new users of the Cray at ANL up and running as quickly as possible. Also, CTD encourages long-time Cray users to refer to these two documents for ways to compute more effectively on the Cray.

The *ANL Supplement to the UNICOS Primer* discusses Cray computing policies and covers getting help, using Fortran and other languages, computing interactively and in NQS batch from a variety of front-end systems, storing and printing Cray files, and copying files between the Cray and other machines. Sample NQS batch requests are provided for common user tasks, as are help files for locally written UNICOS commands and local NQS-related commands on the Unix, VAX/VMS, and CMS systems.

### INTERACTIVE DEBUGGING WITH THE CRAY CDBX SYMBOLIC DEBUGGER

Cray provides the CDBX symbolic debugger to assist you in debugging your UNICOS programs. CDBX is based on the familiar Unix `dbx` command, which is part of the Fourth Berkeley Software Distribution. You may use CDBX (1) to debug programs that have aborted and produced core files, (2) to attach to and examine running UNICOS processes, (3) to set program breakpoints interactively, (4) to

step through the program a line at a time, and (5) to examine the values of variables and arrays.

CDBX has two user interfaces: an X Window System interface and a line-oriented interface. With the X Window interface, a multi-windowed display shows the program source lines, the standard output that results from execution of the program, and the results of CDBX commands (see Figure 1). The X Window interface allows command selection by using the mouse or by entering CDBX commands in the CDBX command window. With the line-oriented interface, the user enters CDBX commands and views the command responses.

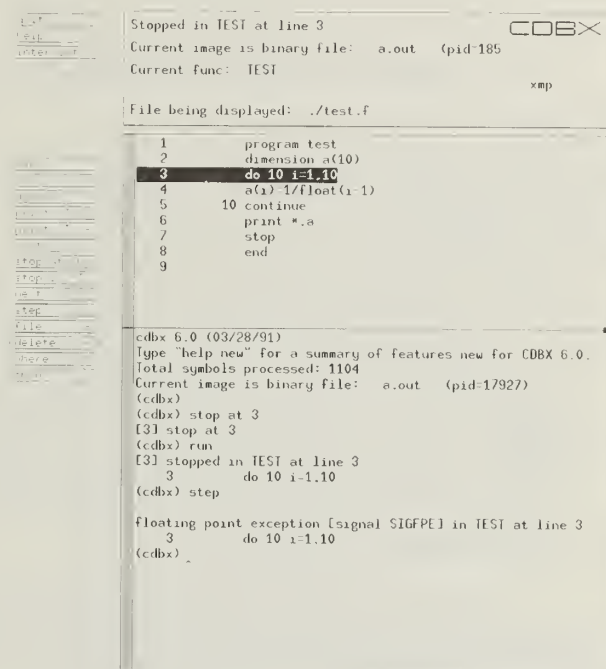


Figure 1: X Window Interface

You may invoke help for CDBX commands from a CDBX session by pressing the CDBX HELP button or by entering "help" in the CDBX command window or at the "cdbx" prompt.

You may use CDBX to debug Cray programs compiled with the C, CAL, CFT, CFT77, and PASCAL compilers. CDBX requires a debug symbol table to reference symbols in each subroutine to be debugged. Table 1 summarizes the compiler



options to produce the debug symbol table required by CDBX.

Table 1: Compiler Options To Produce a Symbol Table	
Compiler	Compiler Option
cc	-g
pcc	-g
as	-g
cf77 cft77	-g -ez [-o off]
cf cft	-g -eD
pascal pascal	-o dm1 -o dm2

The *UNICOS CDBX Symbolic Debugger Reference Manual* (SR-2091 6.0) and the *UNICOS CDBX Debugger User's Guide* (SG-2094 6.0) document CDBX. These documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies).

CTD is developing a class on using CDBX and other modern debugging tools for this fall. If you are interested in participating in such a class, call the User Services consultants at extension 2-5405.

## GRAPHICS NEWS

### SGI 4D/340 VGX COMPUTER AVAILABLE FOR USER EVALUATION

Silicon Graphics Incorporated (SGI) has provided Argonne National Laboratory an SGI 4D/340 VGX four-processor computer for evaluation until October 30, 1991. CTD expects this computer to be ideal for scientific visualization applications and graphical development. An extensive array of third-

party application-specific and generic scientific visualization software runs on the 4D line of SGI graphics computers. You can use these programs for producing animation, modeling fluid flow, geoscience applications, chemistry, computer-aided design, medical imaging, and many other general science applications. A complete list of this software (available on SGI platforms) is in the *Geometry Partners Directory*, a booklet published by SGI. (A copy of this booklet is next to the SGI manuals.)

The SGI 4D/340 is rated at 25 megaflops,<sup>1</sup> 150 millions of instructions per second,<sup>2</sup> 1 million vectors per second, and 180K polygons per second and comes with many advanced graphics capabilities. This machine is installed with a parallel C compiler, Fortran, the most advanced version of SGI's graphics library (GL), and the NASA Flow Analysis Software Toolkit (FAST) to visualize 3-D fluid data.

The computer is available for testing over the Laboratory-wide network. Graphics demonstration programs are available as examples of how to write C programs that use the GL graphics library. Anyone interested in scientific visualization may examine the machine and its capabilities. To try the SGI 4D/340, contact John Rowlan at (708) 972-7587 or at Internet address rowlan@achilles.ctd.anl.gov for an account. The Internet address of the workstation is mangle.ctd.anl.gov. CTD is especially interested in user's experiences with the performance and usefulness of the machine for scientific visualization and other graphics applications.

## MANAGEMENT INFORMATION SYSTEMS

### INTEGRATED FINANCIAL SYSTEM UPDATE

In June 1991, the Integrated Financial System (IFS) Project Team implemented some major modifications to the following reports: "Detailed Charges to Operating Costs with Summarization" (R102F01), "Detailed Charges to Operating Costs with Full Detail" (R102F01A), "Detailed Charges to Work Projects with Summarization" (R102F02), and

<sup>1</sup> Double precision LINPACK 1000 x 1000 benchmark test

<sup>2</sup> VAX Dhrystone millions of instructions per second

"Detailed Charges to Work Projects with Full Detail" (R102F02A). We will make the same changes to the remaining reports in the R102F series for the July 1991 month-end reports.

We made the following changes to the reports:

1. Added the vendor name for the Automated Materials/Payables System (AMPS) purchase orders (POs).
2. Added the recipient name for the AMPS requisitions (not on the PO yet).
3. Added the service request status code on "6-" documents. If the service request is closed (status code=6), R102F01 and R102F02 will summarize into "Closed Items over \$200."
4. Added employee names whenever a "B-" badge number reference was encountered.

We have also added a new report to the R102F series. The R102F01P report came from the R102F01 report with the following modifications:

1. Prints amounts in whole dollars.
2. Does not show commitments and encumbrances in separate columns but in the "Total Cost & Commitments & Encumbrances" column.
3. Prints vendor and item noun for AMPS purchase orders.
4. Prints recipient and item noun for AMPS requisitions.

**NOTE:** IFS can only print descriptive information for requisitions and purchase orders that are processed through AMPS. No descriptions will appear if the requisition or purchase order has been processed outside the AMPS procurement system (subcontracts or manual purchase orders) or if the AMPS document has already been archived.

These report modifications were possible because the new version of the IFS reporting software (Information Expert) expands the amount of data that can be printed on reports. Also, the IFS Project Team has made efficiency improvements to offset the overhead associated with extracting this data from the IFS data files.

Users may select these reports through the Information Organizer (IO) online system. Users who would like to attend a two-hour IO Refresher Course during the week of August 19, 1991, should contact Donna Keto at extension 2-7262.

Progress on all phases of the IFS project will be reported at the Financial Applications Committee to Effect Telesis (FACET) meetings held on the second Wednesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

## PERSONAL COMPUTING

### SITEWIDE LICENSE FOR MACX

ANL has arranged a sitewide license for MacX through the University of Chicago. MacX allows Apple Macintosh computers connected to AppleTalk or Ethernet to operate as an X Window terminal. MacX enables the Apple Macintosh to operate as a server and to display X Windows created by other computers (clients). MacX does not enable the Apple Macintosh to operate as a client that generates X Windows for display on other servers.

Apple suggests that the minimum system requirements for MacX are:

- Any Apple Macintosh computer with at least 2 megabytes of memory.
- Apple Macintosh system software Version 6.0.4 or later (currently not System 7.0).
- At least two floppy disk drives (hard disk highly recommended).
- A network connection with the built-in LocalTalk port in the Apple Macintosh or an Ethernet connection.

CTD has found that at least an Apple Macintosh II is necessary for acceptable performance for interactive sessions; however, we have noticed that running X animations from the Cray needs a faster Apple Macintosh processor like the Apple Macintosh IIci.

MacX requires the MacTCP Ethernet driver, which is included as part of the distribution. For



Apple Macintosh users who also want to use the National Center for Supercomputing Applications (NCSA) Telnet terminal software at the same time as MacX, NCSA provides a specialized version of Telnet, Telnet-MacTCP, available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy) and on the AlisaShare public volume. There is not yet available a version of tn3270 from Clarkson University that works with the MacTCP Ethernet driver. Therefore, if you need to use tn3270 to communicate with the IBM system, you must also have the Ethernet driver installed that came with your Ethernet board and select the correct driver from within the chooser. You cannot operate tn3270 at the same time as MacX. Once you have used tn3270, you must switch Ethernet drivers in the chooser and restart your Apple Macintosh before you can use MacX again.

MacX users who already use NCSA Telnet or tn3270 will use the same Internet Protocol (IP) network address and subnet mask that they use now. MacX users who do not already have an IP address must contact their divisional network administrator to obtain a new IP address for use with MacX.

Apple requires that CTD maintain a record of users who receive MacX software; therefore, to abide by the license agreement, users must obtain copies from CTD and not distribute them to other users. To obtain a copy of MacX, contact David Lifka at extension 2-3251 or at electronic mail address B36857@anlcv1.ctd.anl.gov. CTD charges \$30 for a set of MacX distribution diskettes. Apple MacX 1.1 manuals (part number M0602LL/A) are available for \$65 by special order from the University of Chicago microcomputer store.

## SCIENTIFIC WORKSTATIONS

### IBM RISC SYSTEM/6000 MODEL 550 AVAILABLE FOR USER TESTING

IBM has provided Argonne National Laboratory with an IBM RISC System/6000 Model 550 workstation for testing and evaluation until the end of August 1991. CTD expects the computer to be ideally suited to non-vectorized and non-parallelized codes. The high-performance scalar processor of the

Model 550 should complement the high-performance vector processor of the Cray X-MP. The workstation is available to any Argonne staff member.

The Model 550 obtains 27 megaflops on the LINPACK 100x100 benchmark<sup>3</sup> and has a theoretical speed of 62 megaflops. In addition to a fast processor, the workstation has 128 megabytes of main memory and 1.6 gigabytes of disk storage. The software configuration of this trial machine is sparse, but does include the Fortran compiler and the IBM AIXwindows environment.

To try the IBM RISC System/6000 Model 550, contact John Volmer at (708) 972-5449 or at Internet address b32831@achilles.ctd.anl.gov for an account. Users who want to access files stored in the Cray n2 file system from the Model 550 must obtain and return the Account Services new user form, but only need to complete the section on Network File System (NFS) file services. The Internet address of the workstation will be rs6000.ctd.anl.gov. CTD is especially interested in users' experiences with the workstation and in users' reactions to the Model 550's performance.

## TELECOMMUNICATIONS NEWS

### NEW ADDITIONS TO BITNET UNIVERSITY NETWORK

The BITnet University Network enhances collaborative efforts between Argonne scientists and scientists at universities and other organizations. You can use electronic mail through BITnet to share programs, data, and other information with other BITnet users.

Currently, the BITnet network comprises over 3,410 computers at over 1,225 sites. Since the last *Newsletter* article in June 1991, the following universities and organizations have joined BITnet:

Academy of Economics in Wroclaw--Poland  
Federal University of Uberlandia--Brazil

<sup>3</sup> Dongarra, Jack J. *Performance of Various Computers Using Standard Linear Equations Software*. University of Tennessee Report CS - 89 - 85. Knoxville, TN: 1991.

Geophysical Institute of the Czechoslovak Academy  
of Sciences--Prague  
Hongik University--Seoul  
Hosei University--Tokyo  
Institute for Physics--Prague  
Kwansei Gakuin University--Japan  
National Polytechnical Institute--Mexico City  
New York State Higher Education Services  
Corporation--Albany  
Norwegian Universities Library System  
Postgraduate College--Chapingo, Mexico  
Resources for the Future--Washington, DC  
SUNY-Empire State College--Saratoga Springs  
Technical University of Poznan--Poland  
Technological Institute for Higher Studies--  
Guadalajara  
University of Rio Grande--Brazil  
University of the North--Barranquilla, Colombia  
University of Wisconsin--Green Bay  
Washington Research Library Consortium--Lanham,  
Maryland

For a complete list of organizations in the BIT-  
net network and their nodenames, enter (in CMS, the  
CTD VAX cluster, or MVS Wylbur):

HELP BITNET NODES

## UNIX NEWS

### ONLINE NEWS AVAILABLE IN UNIX

An online NEWS utility is now available for the  
Unix system at Argonne. With this utility, you can  
view the Argonne computing systems news bulletins  
at your terminal or workstation (see Figure 2). Two  
interfaces are available: an X Window interface and  
a line-oriented interface. If your terminal or work-  
station can display the X version, it should do so  
automatically. Currently, the NEWS utility is only  
available from Achilles.

The Unix system is case-sensitive (that is, a cap-  
ital "N" and a lowercase "n" are not equivalent).  
Therefore, to run the NEWS utility, enter:

**news**

To receive help, enter:

**man news**

Or enter:

**news help**

If you experience any difficulty or have any  
questions about this utility, contact the User Services  
consultants at extension 2-5405.

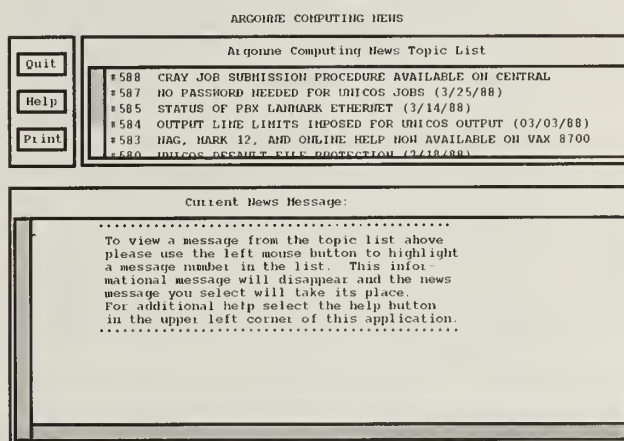


Figure 2: Unix Online NEWS Bulletins

## BITS & BYTES

### RECENTLY UPDATED AND PUBLISHED DOCUMENTS

CTD periodically publishes manuals, reports,  
and other documents to reflect changes in computing  
at Argonne. We also stock many vendor manuals  
for user convenience. The following new docu-  
ments are available at the Document Distribution  
Counter (Building 221, Room A-134) or through the  
mail (by calling extension 2-5405 and requesting a  
copy):

#### Computing and Telecommunications Documents

The *ANL Supplement to the UNICOS Primer*  
(ANL/TM 460) introduces the Cray X-MP interac-  
tive and batch services available at Argonne. It  
serves as a companion to the *UNICOS Primer*  
(SG-2010 6.0). Whereas the *UNICOS Primer* dis-  
cusses standard Unix issues of Cray computing, this  
document discusses those issues specific to Cray  
computing at ANL. (See "New Local UNICOS  
User's Guide Available" in this *Newsletter*.)



### Cray Research, Inc. Documents

The *TCP/IP and OSI Network User's Guide* (SG-2009 6.0) introduces network users to the communication capabilities available with the Transmission Control Protocol/Internet Protocol (TCP/IP) and the Open Systems Interconnection (OSI) on Cray Research computer systems running the UNICOS operating system. This document describes the UNICOS networking commands that you can execute on a Cray computer to communicate with a remote system. Readers should be familiar with either Unix or UNICOS and with the networking products installed on their workstations or computer terminals. This document supersedes the *TCP/IP Network User's Guide* (SG-2009 D).

The *UNICOS CDBX Debugger User's Guide* (SG-2094 6.0) describes the characteristics and capabilities of the CDBX debugger, which is available to users of the Cray. It explains the ways in which you can work with the CDBX debugger and provides examples of commonly used commands. This user guide is for programmers and others who run applications written in CAL, CFT, CFT2, CFT77, C, and Pascal. Readers should have a working knowledge of either the UNICOS or Unix operating systems, plus the language in which their application programs are written. This document supersedes the *UNICOS CDBX Debugger User's Guide* (SR-2094 5.0).

The *UNICOS Support Tools Guide* (SG-2016 6.0) describes some of the more sophisticated software tools available to users of the Cray. Readers should have a working knowledge of the C programming language and either the Unix operating system or UNICOS. This document supersedes the *UNICOS Support Tools Guide* (SG-2016 C).

The *UNICOS Symbolic Debugging Package Reference Manual* (SR-0112 C) describes the operation of the Symbolic Debugging Package. This package has the following analytical tools: DEBUG (a post-mortem core analyzer), SYMDUMP and SYMDEBUG (snapshot dump library routines), DRD (Dynamic Runtime Debugger), and DDA

(Dynamic Dump Analyzer). These tools allow you to debug programs either interactively or in batch. The tools in the Symbolic Debugging Package operate on the Cray Y-MP, the Cray-2, the Cray X-MP, and the Cray-1 computer systems under the Cray operating systems COS and UNICOS. This document describes how to use the symbolic debugging tools under UNICOS. Readers should be familiar with both UNICOS and the programming language in which their programs are written.

The *UNICOS Tape Subsystem User's Guide* (SG-2051 6.0) describes the characteristics and capabilities of the UNICOS tape subsystem, which was developed for use with Cray Y-MP, Cray X-MP EA, and Cray X-MP computer systems that have an I/O Subsystem (IOS) or Cray-2 computer systems that have a Cray-2 Tape Controller (CTC). This document explains how to work with the tape subsystem and provides many examples of commonly used commands. Readers should have a working knowledge of either the Cray Research UNICOS operating system or the Unix operating system. This document supersedes the *UNICOS Tape Subsystem User's Guide* (SG-2051).

*Volume 1: UNICOS Fortran Library Reference Manual* (SR-2079 6.0) describes Fortran-callable subprograms and routines available to users of the Cray. It supplements the information contained in other manuals in the UNICOS documentation set. This document is a reference manual for application and system programmers. Readers should have a working knowledge of either the UNICOS or Unix operating system. This document supersedes the *UNICOS Fortran Library Reference Manual* (SR-2079 5.0).

### University of Chicago Documents

The *University of Chicago Agreements with Personal Computer Vendors* (July 9, 1991) contains the latest lists of personal computer discounts available through the University of Chicago to Argonne employees for both personal and Laboratory purchases. This revised price list supersedes the price list of May 20, 1991.

## USERS GROUP HIGHLIGHTS

### MINUTES OF COMPUTER USERS GROUP MEETING HELD JULY 2, 1991

Pat Garner (Reactor Analysis) opened the meeting at 3:04 p.m.

**Experience with UNICOS 6 and Large Jobs.** Joe Midlock (Computing and Telecommunications) reported on CTD's experiences since the switch to UNICOS 6 on the Cray. CTD has found several difficulties and has developed fixes for them. Programs that use the TLEFT routine have to be relinked with UNICOS 6, because of a change in the work area size. Disspla 11 works fine, but difficulties with opening Fortran files occur with Version 10.5. CTD suggests that users change to Version 11. CTD has corrected difficulties with name lists in cft and with accessing the /n2 file system.

CTD has limited experience with users submitting large jobs. There were some hardware difficulties during the first week after the memory upgrade. After Cray Research hardware personnel installed corrections, the hardware is stable. The CPU utilization has increased because of the ability to keep more jobs active, even with a large job in place. There has been no rush by users to submit large memory jobs.

Questions were raised about the possibility of moving from the Computer Associates (CA) products to others (such as NCAR), where there seems to be better interaction and lower costs. CTD is looking at the available options; but, because of the large user base using the Computer Associates (CA) products at the Laboratory, it would be difficult to completely replace the CA products. CTD has scheduled a meeting with the local CA representative to discuss CA's slow response, low-level product assistance, and high prices.

**Performance Enhancements with the Increased Cray Memory.** Pete Bertoncini (Computing and Telecommunications) reported on the effects of the increased memory on some benchmark jobs that study the effect of memory bank conflicts trying to access the same memory bank for stored information, while that bank is still busy processing a previous request for information. In moving from

4 to 8 megawords of memory, the effect of bank conflicts is greatly reduced. At strides of 4, 8, and 16, the performance with 4 megawords of memory was a half, quarter, and eighth of peak performance, respectively. With the increased memory, the performance is a half and a quarter at strides of 8 and 16, respectively. Therefore, the overall level of performance should be better. Certain jobs may see a 10 percent performance increase. With the increased memory providing a reduced need to swap jobs and with reduced bank conflicts, system performance should increase.

**MVS Fortran 77 Performance Experience.** John Volmer (Computing and Telecommunications) reported on continued efforts to understand the poor performance of VS Fortran 2.4 on formatted input/output (I/O) compared to the HXE compiler. CTD had discussions with IBM. Through connections to the Development Group via Customer Support and the local systems engineer, CTD has obtained little useful information. There is no list of benefits achieved at the expense of the formatted I/O performance reduction, although the manuals refer to greater error checking, double byte characters, and more flexible input processing. IBM responded that they are not concerned about CPU time usage but about elapsed time usage. To officially request that IBM look at the difficulty, CTD filed a performance requirement with the SHARE Users Group that emphasizes the costs of elapsed time and is looking for benchmarks to substantiate the claim. Some recent calculations indicate that VS Fortran 2.4 does not perform as well as Fortran HXE and, in general, is not an improvement. The elapsed time comparison is not finished yet.

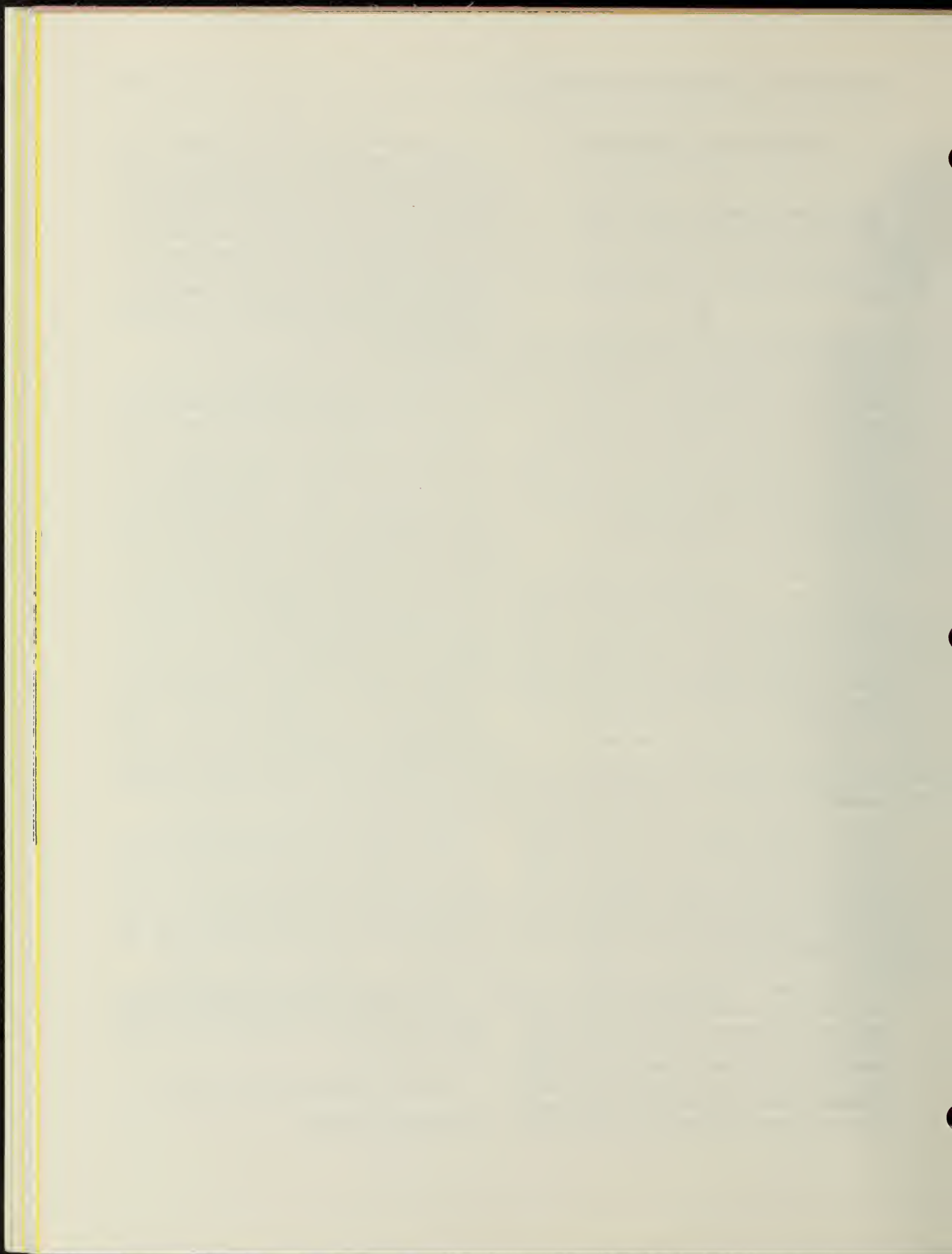
VS Fortran 2.5 is due out in the fall, with provisions to parallelize DO loops automatically and to provide parallel constructs for loops and sections. Once the Multiple Virtual Storage/Extended Architecture (MVS/XA) is running (in late 1991), there will be access to all four processors on the IBM 3084.

Also, CTD is studying the capabilities of several models of IBM RISC 6000 computers. (See "IBM RISC 6000 Model 550 Available for User Testing" in this *Newsletter*.)

The CUG meeting adjourned at 3:47 p.m.

Ken Miles, CUG Secretary





# WORKLOAD STATISTICS (MAY 31 THROUGH JUNE 27, 1991)

## NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	END OF MONTH	ACTIVE DURING MONTH
CMS	1,203	1,217	427
Wylbur	1,659	1,664	305
MVS TSO	57	57	17
CICS	2,235	2,281	161
MVS Batch	2,235	2,281	625
VAX/VMS	638	664	359
Cray	354	361	134
All Systems	2,235	2,281	1,005

## INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				SESSION TIME (HRS)	CPU TIME (HRS)
	PRIME	NIGHT	WEEKEND	TOTAL		
<b>INTERACTIVE</b>						
CMS	10,647	2,128	1,469	14,244	38,227.0	82.22
Wylbur	5,655	188	208	6,051	5,864.8	4.78
MVS TSO	377	5	0	382	544.0	1.24
CICS	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
VAX/VMS	10,363	1,006	1,315	12,684	14,796.8	308.80
Cray	1,570	301	85	1,956	2,288.0	338.21
<b>IBM BATCH</b>						
Class U	7,348	1,618	839	9,805	n.a.	21.79
Class W	14,149	2,751	579	17,479	n.a.	94.50
Class X	10	648	9	667	n.a.	43.26
Class Y	0	1	169	170	n.a.	7.88
Nonmain	16,838	2,946	943	20,727	n.a.	0.00
Total	38,345	7,964	2,539	48,848	n.a.	167.43
<b>CRAY BATCH</b>						
u	1,570	301	85	1,956	n.a.	55.07
w	2,573	126	64	2,763	n.a.	55.20
x	928	278	36	1,242	n.a.	82.58
y	2,048	731	582	3,361	n.a.	110.93
Total	7,119	1,436	767	9,322	n.a.	303.78
<b>VMS BATCH</b>						
W BATCH	559	255	102	916	n.a.	41.70
X BATCH	9	50	16	75	n.a.	157.39
Y BATCH	4	1	7	12	n.a.	19.09
Total	572	306	125	1,003	n.a.	218.18

## INPUT/OUTPUT

Lines Printed	
Local	51,561,237
Remote	44,124,881
Fiche	32,647,024
Cards Punched-Local Only	23,300
Tape Mounts	5,960
Microfiche Developed	4,048
Microfiche Frames Developed	731,995

## GRAPHICS

	# OF JOBS	# OF FRAMES
CalComp Jobs	25	n.a.
Matrix 35mm Color	252	658
Matrix-8 x 10	5	6
Matrix-Negative	0	0

## DATA MANAGEMENT

Tapes Stored	24,574
New Tapes Saved	75
Tapes Released	417
Datasets Exported to Tape	2,570
Datasets Imported from Tape	385

n.a. = not available



# AVAILABILITY STATISTICS, BY MACHINE (MAY 31 THROUGH JUNE 27, 1991)

	Monthly Totals	Hardware	Scheduled Software	Other	Hardware	Unscheduled Software	Other
CMS							
All Shifts							
Interruptions	1.00	0.00	1.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.70	0.00	0.70	0.00	0.00	0.00	0.00
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
WYLBUR							
All Shifts							
Interruptions	5.00	0.00	4.00	0.00	1.00	0.00	0.00
Hrs Unavailable	8.05	0.00	8.01	0.00	0.03	0.00	0.00
MTF/Unscheduled	663.95				663.95		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Hrs Unavailable	0.03	0.00	0.00	0.00	0.03	0.00	0.00
MTF/Unscheduled	239.96				239.96		
MVS TSO							
All Shifts							
Interruptions	5.00	0.00	4.00	0.00	1.00	0.00	0.00
Hrs Unavailable	8.13	0.00	8.10	0.00	0.03	0.00	0.00
MTF/Unscheduled	663.86				663.86		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Hrs Unavailable	0.03	0.00	0.00	0.00	0.03	0.00	0.00
MTF/Unscheduled	239.96				239.96		
JES3							
All Shifts							
Interruptions	4.00	0.00	4.00	0.00	0.00	0.00	0.00
Hrs Unavailable	7.96	0.00	7.96	0.00	0.00	0.00	0.00
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
CICS							
All Shifts							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
VAX/VMS (VAX 8700)							
All Shifts							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
CRAY							
All Shifts							
Interruptions	13.00	4.00	2.00	0.00	7.00	0.00	0.00
Hrs Unavailable	76.93	46.50	2.08	0.00	28.35	0.00	0.00
MTF/Unscheduled	85.00				85.00		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	4.00	0.00	0.00	0.00	4.00	0.00	0.00
Hrs Unavailable	22.31	0.00	0.00	0.00	22.31	0.00	0.00
MTF/Unscheduled	54.42				54.42		

## COMPUTING CENTER USE IN DOLLARS BY COST CENTER (MAY 31 THROUGH JUNE 27, 1991)

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
ADVANCED PHOTON SOURCE							
130	ADVANCED PHOTON SOURCE DIV	\$217	\$336	\$0	\$350	\$102	\$1,005
272	ADVANCED PHOTON SOURCE	\$83	\$0	\$0	\$0	\$66	\$149
340	APS DIVISION MANAGEMENT	\$22	\$0	\$0	\$0	\$54	\$76
341	APS ACCELERATOR PHYSICS	\$237	\$1,519	\$0	\$78	\$117	\$1,950
342	APS DIAGNOSTICS	\$0	\$15	\$0	\$0	\$0	\$15
343	APS LINAC	\$0	\$123	\$0	\$0	\$0	\$123
344	APS RF	\$21	\$52	\$0	\$17	\$121	\$194
345	APS VACUUM	\$21	\$1,512	\$1	\$106	\$489	\$2,128
347	APS CONTROLS	\$43	\$1	\$0	\$0	\$6	\$49
348	APS MAGNETS	\$54	\$2	\$0	\$0	\$1	\$57
349	APS POWER SUPPLIES	\$27	\$0	\$0	\$0	\$0	\$27
350	APS DIVISION MANAGEMENT	\$16	\$0	\$0	\$0	\$12	\$29
351	APS INSERTION DEVICES	\$46	\$69	\$0	\$7	\$58	\$180
352	APS BEAM LINE FRONT ENDS	\$88	\$1,422	\$0	\$454	\$33	\$1,998
353	APS BEAM LINE INSTRUMENTATION	\$14	\$162	\$0	\$0	\$47	\$224
360	APS CONVENTIONAL FACILITIES	\$18	\$0	\$0	\$33	\$0	\$51
361	APS PROJECT DIRECTION	\$35	\$0	\$0	\$0	\$28	\$62
362	APS MANAGEMENT GENERAL	\$22	\$0	\$0	\$0	\$28	\$50
SUBTOTAL		\$945	\$5,212	\$1	\$1,046	\$1,162	\$8,367
ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH							
110	BIO & MED RES DIV	\$2,887	\$701	\$78	\$1,414	\$2,811	\$7,891
125	TECHNOLOGY TRANSFER CENTER	\$59	\$2	\$0	\$10	\$301	\$371
149	ENVIRONMENTAL RESEARCH DIV	\$2,248	\$170	\$95	\$981	\$1,408	\$4,902
155	ENERGY SYSTEMS DIVISION	\$3,261	\$1,768	\$551	\$1,696	\$1,712	\$8,988
165	ENV ASSESS & INFO SCI DIV	\$3,484	\$5,466	\$99,208	\$1,457	\$4,017	\$113,632
174	ENER/ENV/BIO PROG DIR	\$10	\$0	\$0	\$0	\$101	\$111
246	ES-NAT'L ENERGY SOFTWARE CTR	\$72	\$0	\$255	\$596	\$334	\$1,256
274	ENER/ENV/BIO RES PROG ADM	\$170	\$0	\$0	\$4	\$222	\$396
SUBTOTAL		\$12,191	\$8,107	\$100,186	\$6,159	\$10,905	\$137,548
ENGINEERING RESEARCH							
102	EBR-II PROJECT-ANL WEST	\$1,721	\$15	\$2,074	\$2,141	\$114	\$6,065
104	FUELS AND PROCESSES	\$1,117	\$89	\$6	\$174	\$503	\$1,888
107	CHEMICAL TECHNOLOGY DIVISION	\$487	\$640	\$0	\$548	\$431	\$2,106
112	REACTOR ENGINEERING	\$4,920	\$957	\$3,853	\$2,860	\$2,383	\$14,973
114	MATLS & COMP TECH DIV	\$4,792	\$6,348	\$757	\$2,964	\$1,268	\$16,130
115	ENGINEERING PHYSICS DIVISION	\$7,287	\$1,021	\$15,936	\$1,799	\$1,654	\$27,697
116	REACTOR ANALYSIS	\$26,176	\$8,297	\$57,744	\$11,059	\$11,338	\$114,615
117	APPLIED PHYSICS-ANL WEST	\$5,382	\$114	\$8,750	\$279	\$475	\$15,000
118	REACTOR EXP & EXAM DIV	\$5,018	\$2,890	\$9,476	\$310	\$349	\$18,044
171	ENGRG RES PROG DIR	\$3	\$0	\$0	\$0	\$106	\$108
197	SPECIAL PROJECTS OFFICE	\$246	\$3	\$0	\$8	\$152	\$409
211	ENGINEERING PHYSICS DIVISION	\$55	\$11	\$0	\$10	\$3,067	\$3,143
269	CHEM TECH DIV-ANALYTICAL CHEM	\$105	\$2	\$0	\$10	\$151	\$268
271	ENGRG RES PROG ADMIN	\$181	\$0	\$0	\$14	\$332	\$528
SUBTOTAL		\$57,489	\$20,389	\$98,596	\$22,177	\$22,323	\$220,974
PHYSICAL RESEARCH							
105	MATERIALS SCIENCE DIVISION	\$622	\$8,609	\$7,942	\$2,096	\$567	\$19,835
109	PHYSICS DIV	\$1,786	\$720	\$20	\$1,625	\$929	\$5,080
120	CHEMISTRY DIV	\$657	\$10,309	\$14,063	\$1,100	\$587	\$26,716
136	INT PULSE NEUT SOURCE PROG	\$115	\$1,051	\$5,145	\$414	\$257	\$6,983
137	HIGH ENERGY PHYSICS DIV	\$594	\$1,168	\$2,912	\$778	\$1,019	\$6,470
139	DIV OF EDUCATIONAL PROGRAMS	\$144	\$87	\$0	\$62	\$247	\$541
145	MATHEMATICS & COMPUTER SCI DIV	\$77	\$65	\$2,650	\$115	\$4,717	\$7,624
146	CTD DIV - SCI APPL & RES	\$30	\$358	\$139	\$183	\$318	\$1,029
273	PHYSICAL RESEARCH PROGRAM ADMIN	\$61	\$0	\$0	\$28	\$150	\$238
SUBTOTAL		\$4,085	\$22,366	\$32,871	\$5,888	\$9,306	\$74,515
EXTERNAL							
751	FERMI NATIONAL LABORATORY	\$600	\$0	\$0	\$714	\$487	\$1,801
752	NAVY	\$15,497	\$0	\$0	\$1,530	\$5,334	\$22,362
753	MORGANTOWN ENERGY TECH CENTER	\$11	\$0	\$0	\$0	\$0	\$11
754	DEPARTMENT OF ENERGY AT ANL	\$0	\$3	\$0	\$6	\$0	\$9
760	ABBOTT LABORATORIES	\$3	\$0	\$43	\$0	\$0	\$46
763	GENERAL ELECTRIC COMPANY	\$0	\$1	\$0	\$0	\$0	\$1
766	BECHTEL NATIONAL, INC.	\$0	\$49	\$39	\$2	\$1	\$91
775	SMITHSONIAN	\$0	\$0	\$0	\$0	\$3	\$3
777	UNIVERSITY OF CHICAGO AT ANL	\$14	\$0	\$0	\$133	\$0	\$167
778	ARGONNE CREDIT UNION	\$6	\$0	\$0	\$0	\$0	\$6
779	UNIVERSITY OF ILLINOIS AT CHICAGO	\$11	\$0	\$0	\$0	\$0	\$11
780	NEW BRUNSWICK LABORATORY	\$0	\$0	\$0	\$0	\$8	\$8
781	STATE OF ILL. DEPT. MENTAL HEALTH	\$0	\$0	\$0	\$0	\$0	\$0
782	PACKER ENGINEERING	\$3	\$35	\$0	\$0	\$0	\$38
783	WEST VALLEY NUCLEAR SERVICES CO	\$647	\$0	\$0	\$10	\$56	\$714
784	SUPERCONDUCTING SUPER COLLIDER LABS	\$0	\$49	\$1,325	\$49	\$0	\$1,424
787	ILLINOIS INSTITUTE OF TECHNOLOGY	\$0	\$21	\$0	\$7	\$0	\$29
SUBTOTAL		\$16,799	\$158	\$1,409	\$2,471	\$5,890	\$26,727



CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
OPERATIONS							
143	SUPP SERV DIV - ELEC DEPT	\$228	\$5	\$0	\$299	\$358	\$890
148	HUMAN RESOURCES-MEDICAL DEPT	\$684	\$0	\$0	\$69	\$402	\$1,154
150	SUPPORT SERV DIV - SPEC MATLS	\$232	\$0	\$0	\$51	\$150	\$433
161	TECH INFO SERVICES DEPT	\$703	\$20,452	\$0	\$2,792	\$818	\$24,766
201	OFFICE OF THE DIRECTOR	\$288	\$0	\$0	\$134	\$106	\$528
202	OFC OF CHIEF OPER OFCR	\$17	\$0	\$0	\$90	\$101	\$208
210	SUPP SERV DIV - CENT SHOPS	\$439	\$0	\$0	\$82	\$583	\$1,105
216	SUPPORT SERVICES DIVISION	\$95	\$0	\$0	\$38	\$110	\$242
222	PLANT FAC & SERV-LODGING FAC	\$0	\$0	\$0	\$16	\$100	\$116
232	SUPPORT SERV DIV - SECURITY	\$301	\$0	\$0	\$0	\$336	\$637
234	SUPP SERV DIV-HEALTH PHY	\$303	\$34	\$0	\$53	\$217	\$607
235	SUPP SERV DIV-ENV SAFE HEALTH	\$923	\$51	\$0	\$150	\$473	\$1,597
236	SUPPORT SERV DIV - FIRE DEPT	\$7	\$0	\$0	\$0	\$101	\$107
245	COMPUTING AND TELECOM DIV	\$20,846	\$25	\$0	\$3,737	\$2,676	\$27,284
247	COMP & TEL DIV - COM SERV	\$2,058	\$0	\$0	\$402	\$929	\$3,390
260	SUPP SERV DIV-GRAPHIC ARTS	\$296	\$530	\$0	\$47	\$241	\$1,114
265	ELECTRONIC PUBLISHING SERVICE	\$3	\$6	\$0	\$2	\$0	\$10
275	OFFICE OF PUBLIC AFFAIRS	\$826	\$0	\$0	\$63	\$165	\$1,054
276	OFC PUB AF - MOTN PIC UNIT	\$46	\$0	\$0	\$1	\$17	\$63
296	TELECOM COST/RECOVERY	\$0	\$0	\$0	\$65	\$0	\$65
315	SUPP SERV DIV-MATLS & SERV	\$2,438	\$0	\$0	\$879	\$460	\$3,776
316	PLANT FAC & SERV-VEH MAINT	\$0	\$0	\$0	\$0	\$168	\$168
317	PLANT FAC & SERV-DRIV&RIG SERV	\$13	\$0	\$0	\$1	\$100	\$114
319	SUPP SERV DIV-TRAVEL OFC	\$3	\$0	\$0	\$1	\$100	\$104
322	SUPP SERV DIV-PROCUREMENT	\$41	\$1	\$0	\$1	\$103	\$145
333	QA, ENVIR & SAFETY OFC	\$70	\$1	\$0	\$16	\$189	\$276
336	SUPP SERV DIV - INSPECTION	\$14	\$2	\$0	\$0	\$2	\$18
400	OFC OF CHIEF FIN OFFICER	\$37,712	\$0	\$0	\$3,453	\$11,730	\$52,895
401	ACCOUNTING	\$0	\$0	\$0	\$72	\$100	\$172
402	OFC CHIEF FIN OFCR-DATA ENTRY	\$9	\$0	\$0	\$150	\$0	\$159
403	BUDGET OFFICE	\$0	\$0	\$0	\$0	\$100	\$100
410	HUMAN RESOURCES DEPARTMENT	\$11,250	\$0	\$0	\$1,207	\$1,788	\$14,244
412	AFFIRM ACTION PROGRAM	\$57	\$0	\$0	\$45	\$101	\$202
501	PLANT FAC & SERV-BLDG MAINT	\$39	\$0	\$0	\$45	\$381	\$465
502	PLANT FAC & SERV-INSTALLATIONS	\$22	\$0	\$0	\$3	\$100	\$125
503	PLANT FAC & SERV-GROUNDS	\$0	\$0	\$0	\$0	\$100	\$100
504	PLANT FAC & SERV-CUSTODIAL	\$3	\$0	\$0	\$0	\$100	\$103
505	PLANT FAC & SERV-WASTE MGMT OP	\$49	\$0	\$0	\$72	\$100	\$221
506	PLANT FAC & SERV-PLANT MGR OFC	\$503	\$0	\$0	\$8	\$314	\$825
510	PLANT FAC & SERV-UTILITY SYST	\$0	\$0	\$0	\$0	\$102	\$102
512	PLANT FAC & SERV-FAC PLNG/ENG	\$912	\$0	\$0	\$63	\$236	\$1,211
530	SITE MGRS OFC-ANL WEST	\$103	\$3	\$0	\$9	\$102	\$218
531	PERSONNEL-ANL WEST	\$79	\$0	\$0	\$28	\$144	\$252
532	SPECIAL MATLS-ANL WEST	\$791	\$0	\$0	\$198	\$280	\$1,269
533	ACCOUNTING-ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
534	PURCHASING-ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
535	SECURITY - ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
536	SAFETY STAFF-ANL WEST	\$133	\$0	\$0	\$0	\$102	\$235
537	INFORMATION SERVICE-ANL WEST	\$0	\$22	\$0	\$8	\$100	\$131
538	MATLS HANDLING-ANL WEST	\$85	\$0	\$0	\$17	\$100	\$202
548	ANL WEST GENERAL EXPENSE	\$164	\$0	\$0	\$57	\$2	\$223
550	COMPUTER APPL & SERV - ANL-W	\$97	\$40	\$0	\$12	\$101	\$249
551	RAD MONITORING-ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
554	MACHINE SHOP-ANL WEST	\$30	\$0	\$0	\$4	\$101	\$135
556	SITE ENGRG-ANL WEST	\$110	\$0	\$0	\$19	\$100	\$230
557	PLANT SERVICES-AW-SERVICE REQ	\$59	\$3	\$0	\$6	\$100	\$167
558	PLANT SERVICES-AW-FUNCTION	\$3	\$0	\$0	\$0	\$0	\$3
561	OFC OF QUALITY ASSURANCE - AW	\$3	\$0	\$0	\$0	\$101	\$104
SUBTOTAL		\$83,084	\$21,175	\$0	\$14,464	\$25,991	\$144,714
TOTAL		\$174,593	\$77,406	\$233,064	\$52,205	\$75,577	\$612,845

## COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	Onsite (Illinois)	Onsite (Idaho)	Offsite (Area Code 708)
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	n.a.	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		

### CICS, CMS, Wylbur, and TSO Interactive Computing Services

IBM 3270 Protocol Converter			
1200 to 19.2K Bits Per Second (Onsite)	2-3270	n.a.	
1200 to 2400 Bits Per Second (Offsite)			972-3270
9600 to 19.2K Bits Per Second (Offsite)			972-3219
X.25 Terminal Multiplexor			
300 to 19.2K Bits Per Second (Onsite)	2-2525	n.a.	
1200 to 2400 Bits Per Second (Offsite)			972-2525
9600 to 19.2K Bits Per Second (Offsite)			972-2519
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	n.a.	972-2212
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	n.a.	972-7612
300 Bits Per Second	2-7603*	n.a.	972-7603*

\* When using a 300 bits per second modem, you must use a capital "P" to logon.

### Batch Remote Job Entry Service

2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573

### Central DEC VAX 8700

1200 to 19.2K Bits Per Second (Onsite)	2-8700	n.a.	
1200 to 2400 Bits Per Second (Offsite)			972-8700
9600 to 19.2K Bits Per Second (Offsite)			972-8745

### Argonne TCP/IP Network

1200 to 19.2K Bits Per Second (Onsite)	2-5588	n.a.	
1200 to 2400 Bits Per Second (Offsite)			972-5588
9600 to 19.2K Bits Per Second (Offsite)			972-4726

### Argonne MFEnet Dial-Up

300 to 19.2K Bits Per Second	2-7920	n.a.	972-7920
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### Tymnet Commercial Packet-Switching Network

Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.

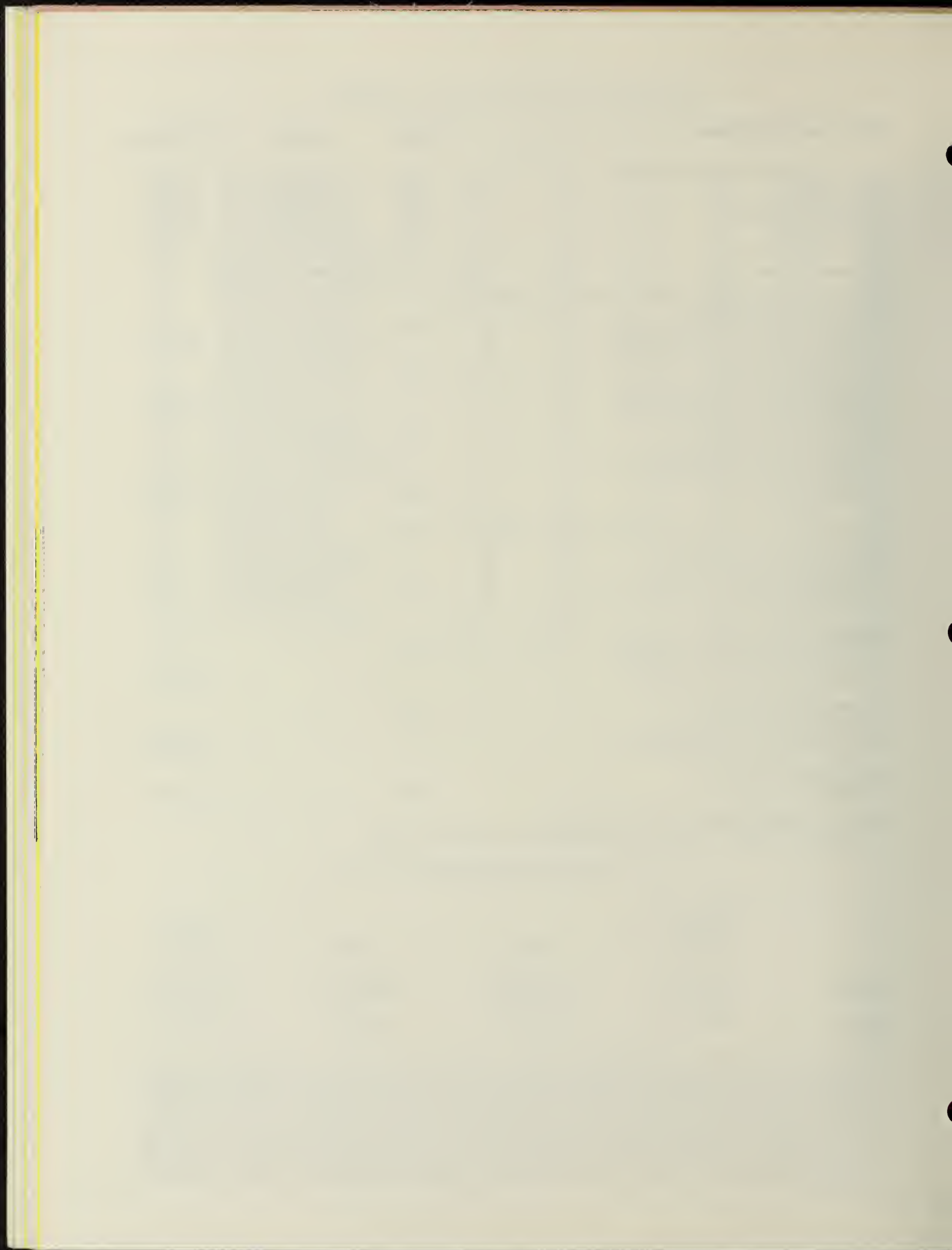
## COMPUTING CENTER SERVICE SCHEDULE

(All Times Are Central Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	VM/XA	VMS	MFEnet Gateway
Monday to Thursday	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

\*\* Except for the interruption of UNICOS from 4:00 a.m. until 8:00 a.m. on Mondays for maintenance, service continues uninterrupted past 4:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 3:00 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 3:00 p.m. before making plans that require the availability of a service the following morning.





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## COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering seven classes. There is no charge for attending classes, unless otherwise indicated. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the class and notify attendees of any schedule changes. CTD will reschedule or cancel any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

### INTRODUCTION TO COMPUTING FACILITIES AND SERVICES

Goals: To develop an overview of available computing facilities and services provided by CTD.

Length of Class: One 3-hour session

Date and Time: September 11, 1991 (Wednesday), 9:00 a.m. to noon

Location: Building 221, Room A-261

Suggested Reading: *Guide to Computing at ANL* (ANL/TM 336, REVISION 2)  
*Recommended Documentation for Computer Users at ANL* (ANL/TM 379, REVISION 2)  
*Guide to Telecommunications at ANL* (ANL/TM 422, REVISION 1)

Instructor: Fred Moszur

### INTRODUCTION TO VAX/VMS

Goals: To learn some basic concepts on VAX/VMS (including how to logon to VMS, create files, set up subdirectories, compile and link programs, submit batch jobs, use the online HELP facilities, and access the companion computer-based instruction courses in VMS).

Length of Class: One 3-hour session

Date and Time: September 12, 1991 (Thursday), 9:00 a.m. to noon

Location: Building 221, Room A-261

Suggested Reading: *VMS User's Manual* (AA-LA98B-TE)

Instructor: Dave Lifka



## INTRODUCTION TO UNIX

Goals:	To learn the basic concepts required for using Unix computer systems. This class will be a general overview of Unix commands, editing, and file systems and will demonstrate topics from logging on to creating, compiling, and executing a program.
Length of Class:	Three 3-hour lectures and three 1-hour labs
Dates and Time:	September 16, 17, and 18 (Monday, Tuesday, and Wednesday) 9:00 a.m. to noon (Lecture) One-hour Lab each afternoon
Location:	Building 221, Room A-216 (Lecture) Building 221, Room A-261 (Lab)
Suggested Reading:	<i>A Practical Guide to the Unix System</i> (0-8053-0243-3)
Instructor:	Dave Leibfritz

## PROGRAMMING IN VAX/VMS

Goals:	To learn to use the VAX/VMS system. This class will include VAX Fortran programs, suggestions for writing basic Digital Command Language (DCL) command procedures (including a LOGIN.COM), the usage of the VMS system debugger and the interprocess communications features, and an overview of the aspects of VMS internals affecting program performance.
Length of Class:	One 3-hour session
Date and Time:	September 17, 1991 (Tuesday), 9:00 a.m. to noon
Location:	Building 221, Room A-261
Instructor:	Dave Lifka

## INTRODUCTION TO UNICOS

Goals:	To learn the basics of the Cray UNICOS file system, space management, and shell programming. To learn how to use the Network Queueing System (NQS) for Cray batch processing and how to submit work and to manage Cray files from the IBM MVS front-end station and the Laboratory-Wide Local Area Network.
Length of Class:	One 3-hour session
Date and Time:	September 23, 1991 (Monday), 1:30 p.m. to 4:30 p.m.
Location:	Building 221, Room A-261
Suggested Reading:	<i>A Practical Guide to the Unix System</i> (0-8053-0243-3) <i>UNICOS Primer</i> (SG-2010 6.0) <i>ANL Supplement to the UNICOS Primer</i> (ANL/TM 460)
Instructor:	Tom Canfield Steve Karlovsky

## INTRODUCTION TO WYLBUR FOR MVS BATCH COMPUTING

Goals:	To learn to use Wylbur, an interactive system that provides a convenient interface for IBM MVS batch processing. To learn about the IBM MVS batch system at Argonne (including how to compile and execute programs and obtain printer output). Wylbur is efficient, easy-to-learn, and powerful for editing data and programs and for submitting jobs for IBM batch execution.
Length of Class:	One 3-hour lecture with lab
Date and Time:	September 24, 1991 (Tuesday), 9:00 a.m. to noon
Location:	Building 221, Room A-261
Suggested Reading:	<i>SLAC Wylbur Tutorial</i> <i>OBS Wylbur Reference Manual</i>
Instructor:	Mike Thommes

## USING CMS WITH IBM 3270-COMPATIBLE DISPLAY TERMINALS

Goals:	To learn to use CMS with an IBM 3270-compatible display terminal, an IBM or Apple Macintosh personal computer with NCSA tn3270, or an ASCII terminal capable of using the Hydra Protocol Converter. To learn to send and receive electronic mail; to write documents and memos; to organize information in files; to create program, text, and data files; to manipulate files with the editor; to invoke programs like statistical and graphic packages; and to get printed reports.
Length of Class:	Two 3-hour lectures with labs
Dates and Time:	September 24 and 25, 1991 (Tuesday and Wednesday), 1:30 p.m. to 4:30 p.m.
Location:	Building 221, Room A-261
Suggested Reading:	<i>IBM Virtual Machine/Extended Architecture System Product VM/XA SP, Release 1 and Release 2: CMS Primer (SC23-0368-0)</i> <i>CMS at ANL (ANL/TM 423, REVISION 2)</i>
Instructor:	Pete Bertoncini

## COMPUTER-BASED TRAINING COURSES

Currently, CTD offers one computer-based training course in CMS and five courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

### IBM CBT Course

(Enter SLFTEACH at the CMS prompt.)

SLFTEACH                      Introduction and Advanced Concepts of Xedit

### DEC CBT Courses on the Central VAX 8700

(Enter RUN "course name" at the DCL level.)

Course Name	Course Title
VMSCAI	Introduction to VAX/VMS
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers

To register for a class, call extension 2-5405.





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# ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division

VOLUME 22

NUMBER 9

SEPTEMBER 1991

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Computing Center Classes

DEPOSITORY,

SEP 23 1991

UNIVERSITY OF ILLINOIS



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# COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory

Building 221

Argonne, Illinois 60439-4844

FAX: 708-972-5983

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

		Room	Phone	Electronic Mail Address
Division Director	David Weber	A251	2-7155	B22788 AT ANLVM
Computer Protection Program Manager	Jean Troyer	A237	2-7440	B18216 AT ANLVM
Computing and Telecommunications Operations	Larry Amiot	B243	2-5432	B10523 AT ANLVM
Computer Network	Bob McMahon	B239	2-7270	B17385 AT ANLVM
Data Communications	Linda Winkler	B251	2-7236	B32357 AT ANLVM
Service Engineering	Paul Phillips	D118	2-4343	B36679 AT ANLVM
Computer Operations	Gary Schlesselman	A113	2-5437	B09819 AT ANLVM
Day and Weekend Operation	Bob Bilshausen	A134	2-5421	
Document Distribution Counter		A134		
Evening and Overnight Operation	Mike Monczynski	A134	2-5421	
Tape Librarian	Sandra Vasko	A134	2-7681	B18669 AT ANLVM
Systems Programming	John Volmer (Acting)	B211	2-5449	B32831 AT ACHILLES.CTD.ANL.GOV
Telephone Services	Allen Winter	B247	2-2764	B07059 AT ANLVM
User Services	Fred Moszur	A121	2-7419	B27564 AT ANLVM
Computer Use Authorizations	Fran Carnaghi	A147	2-5425	B27596 AT ANLVM
Consultants		A139	2-5405	CONSULT AT ANLVM
Documentation Advice		A139	2-5405	CONSULT AT ANLVM
Education and Assistance	Pete Bertoncini (Acting)	E101	2-4827	B15013 AT ANLVM
Management Information Systems	Diane O'Brien	B151	2-7167	B26424 AT ANLVM
Financial Systems	Nick Moore	D239	2-8075	B31048 AT ANLVM
Human Resource Systems	Bob Hischier	B147	2-7272	B22639 AT ANLVM
Information and Production Services	Miriam Bretscher	B139	2-7252	B26187 AT ANLVM
Materials and Plant Systems	Rich Slade	B159	2-7329	B32848 AT ANLVM
Planning, Finance, and Administration	Mike Boxberger	A245	2-5638	B34540 AT ANLVM
Scientific Applications and Research	Charles Mueller	A231	2-7153	B11284 AT ANLVM

The Division operates a Cray X-MP/18 with UNICOS 6.0.12, a Sun 3/280 gateway, a central VAX cluster (a DEC VAX 8700 and a DEC VAX 6410) with VMS 5.4, an IBM 3084QX9, and three Hewlett-Packard 3000 minicomputers. Software on the IBM computers includes VM/XA SP 2.1 with CMS Release 5.6, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E) Release 1.3.0, and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 708-972-5415.

The *Argonne Computing Newsletter* is published monthly by the Computing and Telecommunications Division, Argonne National Laboratory, Argonne, Illinois 60439; edited, prepared, and formatted by April Heiberger with CMS, Waterloo Script, and the Linotype L300P typesetter. This *Newsletter* was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

## COMPUTING COMMENTS

### CTD OPEN HOUSE

On Friday, September 20, 1991, from 1:00 p.m. until 4:30 p.m. in Building 221, the Computing and Telecommunications Division (CTD) will hold an open house. This open house (including tours, exhibits, and refreshments) will give Laboratory personnel an opportunity to see firsthand the CTD resources available to scientific, technical, and administrative programs.

### CONVERSION TO IBM 3480-TYPE CARTRIDGES CONTINUES AS PLANNED

In November 1990, CTD announced the planned reduction in the number of IBM 3420 10-inch tape reel drives in favor of IBM 3480-type cartridges and drives (see "Reduce Tape Data Storage Costs by Using IBM 3480-Type Cartridges" in the November 1990 *Newsletter*.) In January 1991, we reduced the number of IBM 3420 drives to eight. Now we intend to decommission two more drives. CTD continues toward the announced goal of only four tape reel drives: two IBM 3420 Model 8 dual density (1600 and 6250 bpi) drives, one IBM 3420 Model 7 dual density (800 and 1600 bpi) drive, and one 7-track tape reel drive.

Generation of new data on 10-inch tape reels has essentially stopped. Only those few applications that transfer data to other sites continue to generate new data on 10-inch tape reels.

Users of cartridges are enjoying lower overall costs and improved reliability. Users with 10-inch tape reels should move data to the IBM 3480-type cartridges. If you need assistance, contact the User Services consultants at extension 2-5405.

### COMPUTING CLASSES SCHEDULED FOR SEPTEMBER AND OCTOBER 1991

During September and October 1991, CTD will offer seven classes. The schedule is appended to this *Newsletter*. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of classes and notify attendees of any schedule changes. CTD will

reschedule or cancel classes with fewer than six registrants *one week* prior to the scheduled date of the class.

*Introduction to Computing Facilities and Services* (one 3-hour session) provides an overview of the computing facilities and services available at Argonne. New Argonne computer users, as well as anyone else interested in computing at Argonne, should attend this class.

*Introduction to VAX/VMS* (one 3-hour session) is for first-time VAX/VMS users who need an overview of the features available in VAX/VMS. Attendees will become familiar with available VMS documentation and will learn how to logon to VMS, to create files, to set up sub-directories, to compile and link programs, to submit batch jobs, and to use the online HELP facilities. Also, attendees will learn how to access the companion computer-based instruction courses, "Introduction to VAX/VMS" and "Introduction to the Extensible VAX Editor." Everyone registering for this class should request an account on the CTD VAX cluster before attending the class to access the computer-based instruction courses. To request an account, call Account Services at extension 2-5425.

*Introduction to Unix* (three 3-hour lectures with three 1-hour labs) is an overview of the Unix operating system. Scientific computing users will need some familiarity with Unix to use the Cray X-MP, new scientific workstations, and future advanced architecture computers. Attendees will become familiar with using the file system; changing file permissions; using the vi editor; using mail; configuring the user environment; creating, compiling, and executing programs; using job and process control; using the Transmission Control Protocol/Internet Protocol (TCP/IP); using good computer protection practices; and using many useful commands. CTD will establish temporary accounts on the CTD Sun Unix server for attendees for the duration of the class. The class will entail the use of Unix from ASCII terminals to reinforce the lecture content.

*Programming in VAX/VMS* (one 3-hour session) acquaints VMS users with features of VMS. Topics include programming VAX Fortran; writing DCL (Digital Command Language) procedures; using the VMS system debugger, the runtime library, and system services; and reviewing VMS internals.

*Introduction to UNICOS* (one 3-hour session) is for new users who want basic information on



UNICOS on the Cray X-MP/18 high-performance computer. The class will review material covered in the *Introduction to Unix* class and will cover shell programming, Network Queuing System (NQS) job submission, and management of Cray files from the IBM MVS front-end station or from scientific workstations via Transmission Control Protocol/Internet Protocol (TCP/IP).

*Introduction to Wylbur for MVS Batch Computing* (one 3-hour lecture with lab) explains how to use Wylbur, an efficient easy-to-learn interactive editing system ideally suited for users of the IBM MVS batch computing system. You can use Wylbur interactively to create and modify programs, data, and text; to submit IBM MVS and Cray UNICOS batch jobs; and to review IBM MVS and Cray UNICOS batch output.

*Using CMS with IBM 3270-Compatible Display Terminals* (two 3-hour lectures with labs) is for CMS users of IBM 3270-compatible display terminals, IBM or Apple Macintosh personal computers with NCSA tn3270, or ASCII terminals with the Hydra Protocol Converter. This class is for people who send or receive electronic mail; who organize information in files and obtain information from files; who create and modify data, programs, or text files; or who use applications packages such as Cuechart, SAS, Script, and Tellagraf. The labs use ASCII terminals with the Hydra Protocol Converter, but the principles learned will apply to all the terminals and access methods mentioned above. Everyone registering for the CMS class must have a CMS account before attending the class. To request an account, contact Account Services (Building 221, Room A-147, extension 2-5425).

## CRAY NEWS

### CTD EXPERIENCES IN CODE OPTIMIZATION

The Cray Optimization Project has helped Argonne scientists improve the efficiency of their applications on Cray systems (see "Optimizing User Codes for the Cray X-MP" in the May 1991 *Newsletter*). In the past three months, CTD has worked with six different user applications and has achieved performance improvements ranging from factors of 1.5 to 11. This article highlights two recent successes of the Cray Optimization Project.

Visiting professor Dr. John Eggebrecht (Materials Science Division) requested help in improving his code. Within a few hours, we had moved the code from a VAX to the Cray, used PERFTRACE and PROF to analyze the performance, and determined the sections of code that were consuming most of the execution time. With this information, Dr. Eggebrecht made the changes needed to vectorize two inner do-loops that were executing as serial (scalar) code. The modified code ran six times faster than the original code. Moreover, Dr. Eggebrecht was able to use the modified code on problems that had been too costly to solve with the original code.

Because this code was small (under 1,000 lines), we could quickly analyze it. Also, this task used the expertise of both a computer scientist and a computational scientist. We were able to use Toolpack routines to restructure the code, making it more readable and easier to understand. Then Dr. Eggebrecht, who was familiar with the code, was able to make the appropriate optimization changes quickly.

We were equally successful in helping Ram Devanathan (Materials Science Division) improve the performance of a code called Johnfit. Analysis showed that the Dyn81 program was consuming most of the time. After Ram Devanathan attended the Cray Performance Workshop on April 30, 1991, we began to work on optimizing Dyn81. Ram Devanathan was able to rewrite Dyn81 to achieve a performance improvement of a factor of 5.

CTD provides the Cray Optimization Project as an integral part of the Cray UNICOS service at no additional charge. The results have allowed Argonne scientists to do more calculations for the same cost, to address previously impossible problems, and to provide additional CPU cycles on the available Cray X-MP computer.

For help in improving the performance of your codes, contact Larry Rudsinski at extension 2-7219 or Peter Bertocini at extension 2-4827.

## MPGS AVAILABLE FOR EVALUATION

Currently, CTD is evaluating the Multi Purpose Graphics System (MPGS) from Cray Research, Inc. MPGS allows the user to run a finite element or finite difference application on the Cray X-MP/18 and to display three-dimensional graphic results on an Integrated Raster Imaging System (IRIS) workstation.

The MPGS user can:

- Display results by using an interactive menu system that permits dynamic transformations by using a mouse.
- Render objects as three-dimensional meshes or solid-shaded images.
- Use color contours or false color maps to display surface data.
- Color nodes according to scalar value.
- Display vectors by using colored arrows scaled by magnitude.
- Display particle tracing and color shading of two-dimensional clipping planes.

The program communicates via sockets by using the Transmission Control Protocol/Internet Protocol (TCP/IP) over Ethernet. A user has to modify the Cray program to write out a special file for MPGS. A file containing the problem geometry is necessary; and three optional files may be written containing scalar data, vector data, and time reference. An MPGS process running on the Cray reads these files and communicates their contents to an interactive MPGS process running on the IRIS workstation. The user can then control the display of his output with a mouse and various menus. This procedure allows MPGS to perform dynamic transformations of the data; to display the computational mesh; and to display contours of scalar data, shade images, vector arrows, and particle traces.

Interested users should contact Tom Canfield at extension 2-4588.

## GRAPHICS NEWS

### XMOVIE AVAILABLE VIA ANONYMOUS FTP

Xmovie is an X program written by CTD for postprocessing CA-Disspla animations. To produce animations with xmovie and Disspla:

1. Use the ANLXDRV driver and insert the call to XWINDUMP in your Disspla program.
2. Compile, link, and execute your program on the Cray or the VAX.
3. Process the resulting file produced from XWINDUMP with xmovie on your workstation to produce animation.

For a detailed description, see "Xmovie Available for CA-Disspla Postprocessing" in the April 1991 *Newsletter*. Xmovie uses the standard X Window Library, Version 11.0, Release 4, with Athena widgets. Any workstation running this version of X with Athena widgets should be able to run xmovie. The source code for xmovie is now available via anonymous ftp from CTD's Sun4 Server (Achilles). On Achilles, the directory /pub/xmovie contains the source files and the makefile for xmovie. If you encounter any difficulties accessing the source or building xmovie, contact Dave Leibfritz at extension 2-6596.

## MANAGEMENT INFORMATION SYSTEMS

### ADPO REVIEWS MIS PROJECTS

The Administrative Data Processing Oversight (ADPO) Committee is reviewing 20 projects in management information systems for FY1992.

In the financial systems area, the Integrated Financial System (IFS) project continues to develop three subsystems that focus on user environment, an effort entry system, and a budget system. Other projects would automate encumbrance processing for purchases and subcontracts and create a Service Center Costing System (SCCS) with two compo-



nents. Another project develops a personal computer-based version of Materials and Services Tracking (MAST) to track the financial aspects of purchases, contracts, service requests, and travel. At Argonne West, a proposed project would automate all Accounts Payable information into a single system, with all data available to staff at Argonne East and West. Also under review is a new budget system for non-programmatic divisions.

In the people systems area, the Committee reviewed funding for the Employee Certification, Training, and Development System to automate monitoring, scheduling, maintaining, and reporting employee certification, environment, safety, and health, and other training data. The Committee is reviewing proposals to develop a suspense file processing capability for personnel and payroll and a position requirements database. A pilot project would provide electronic interfaces between the Human Resource (HR) computerized systems and the Associate Laboratory Director (ALD)/division offices in the processing of personnel actions and would implement new technologies and extend the information handling capabilities of existing HR systems. A Medical Systems Enhancement proposal would refine medical surveillance and diagnosis and would save labor in tracking, monitoring, reporting, and corresponding about illnesses and occupational incidents.

For Argonne West, ADPO has reviewed funding for an Environmental Compliance Management System (ECMS) that would identify environmental compliance issues for specific projects or proposals, track compliance actions, and verify the resolutions of environmental compliance issues.

The Argonne Information Management (AIM) System has implemented its library catalog database management system. The AIM project would move ahead to investigate and create prototypes for access through AIM to non-ANL library systems and commercial database search services, to provide computer capabilities for transferring data from check-out terminals to the Argonne central VAX 8700 and into AIM, to investigate and plan for storage and retrieval of full text and alternatives to current data storage (optical storage), to fine tune the system to reduce costs, and to provide a thesaurus.

In the materials area, the multi-year Integrated Materials Management System (IMMS) project,

which was to incorporate all the functions of requisitioning, procurement, receiving, inventory, and accounts payable at the Laboratory, has taken a new direction because of extensive studies by the Support Services Division (SSD). SSD has decided not to replace the Automated Materials Payables System (AMPS) with a commercial application but instead to process AMPS requisitions through a front-end requisitioning system with an online inquiry capability and to replace the Stock Tracker System (STS) with a Personal Computer (PC) local area network system. The Committee is also reviewing a proposal for a lodging facility--hotel property management system.

In the area of MIS infrastructure, a pilot project has been proposed for document imaging for the Office of the Chief Financial Officer (OCF)/Accounts Payable and document transmittal. A postponed project would have investigated a voice response system like Voice Mail to allow users access to limited computerized information.

ADPO has reviewed a proposal for a feasibility study of a Relational Data Base Management System (RDBMS) for administrative computing. If the proposed investigation approves the use of an RDBMS, the new system would result in better management of data, sharing common data between applications, use of a common Structured Query Language (SQL), easier applications development, and the possibility of sharing data with other SQL-based RDBMSs on multiple hardware platforms.

#### **AIM SYSTEM USAGE SURPASSES EXPECTATIONS**

The full power of the Argonne libraries is now available at your desk, thereby saving you time and providing information at your finger tips. Technical Information Services (TIS) reports that the number of users has tripled since Argonne unveiled the Argonne Information Management (AIM) System in January 1991. The AIM System offers capabilities never before possible to ANL personnel. Electronically, you can have access to AIM in your office and in the libraries. Search and retrieval is provided for books, journals, and reports in one file. You can also search tables of contents for over 7,500 scientific/engineering journals.

By April 1991, the AIM System was well under way, with a total of 1,187 user sessions logging into the system. In June 1991, there were 1,437 user sessions, an increase over April and May 1991. July 1991 surpassed that number, with a total of 1,813 sessions. The heaviest AIM usage is between 10:00 a.m. and 6:00 p.m., Monday through Friday, with an average of 80 users per hour.

To use the AIM System, you must either use terminals in one of the ANL libraries or be able to connect to the Argonne central VAX 8700 through Internet (node AIM.CTD.ANL.GOV) or from the DEC terminal server (node AIM). To do this, you need a VAX cluster account from Account Services (Building 221, Room A-147, extension 2-5425).

After you are logged onto the VAX 8700, enter:

#### \$ AIM

This procedure displays the welcome screen. At this point, you can choose to enter the library online database, search current tables of contents, or view AIM news and new materials added to the libraries.

In the library online database, you can enter your search criteria on any of the lines. The wildcard character (\*) allows you to broaden the search criteria. You can search by keyword, key number, title, subject, and author.

To move through the library online database, watch the top of your screen. There are options along with their associated keypad buttons. AIM uses the numeric keypad to perform functions. There are many Digital Equipment Corporation (DEC) terminal emulations for connecting to a VAX: the DEC Pathworks (PCSA); Kermit for the Personal Computer (PC), Version 3.01; and National Center for Supercomputing Applications (NCSA) telnet, Version 2.2. If your PC can emulate a DEC VT100 terminal, then you should have no difficulty with AIM. If you experience difficulty with the keypad, contact the User Services consultants at extension 2-5405.

General keys are Keypad 7 (KP7), which exits you from the database; Keypad 9 (KP9), which resets your search and brings you back to perform another search; and Keypad 1 (KP1), which provides online help while you are in the database. CTRL-C cancels any action you are performing.

After you have located your material, checking it out is fast. A requested book can be sent to you. If you are in one of the ANL libraries at a check-out terminal, scan your badge's barcode (located on the back of your badge) and then the barcode label on the book you want to check out.

### TRAINING MANAGEMENT SYSTEM

The Laboratory has completed the first phase of the Argonne Training Management System. In August 1991, Argonne implemented the initial Personal Computer (PC)-based components of the system to assist Laboratory management and users in identifying and recording necessary employee training information. Identifying needed training and obtaining and reporting training, certification, and professional development data has been a Laboratory goal for several years and is nearing implementation with the added impetus provided by the Tiger Team.

The Laboratory is developing this system over a six-month period. The initial phases are IBM PC-based components that Environment, Safety, and Health (ESH) training staff are operating. Later phases will include IBM mainframe components that will be integrated into the Laboratory's other existing human resource management systems sometime in January 1992.

The Administrative Data Processing Oversight (ADPO) Committee has approved the development of the system. The resulting system will be Customer Information Control System (CICS)-based; will be accessible to all authorized users on a Laboratory-wide basis; and will provide for user reporting, training, tracking, and several other features.

### INTEGRATED FINANCIAL SYSTEM UPDATE

On July 23, 1991, the Integrated Financial System (IFS) Project Team implemented the Dun and Bradstreet Software (DBS) Accounts Payable System. The Laboratory's Accounts Payable Department will use this system to produce checks. This system replaces a 14-year-old, increasingly unreliable Entrex minicomputer previously used to produce the Accounts Payable checks. The Accounts Payable System produces Automated Materials Order System (AMOS) payments, Automated Materials/



Payables System (AMPS) checks, manual payments, and cost distributions. The Entrex hardware had no back-up system and cost \$900 per month for maintenance.

Also in July 1991, the Financial Applications Committee to Effect Telesis (FACET) began a series of educational talks to acquaint people with various policies, procedures, and systems in the administrative and financial areas. The first part of the series describes Laboratory financial procedures. The educational series will provide opportunities to ask questions or point out problem areas that might be examined for improvement.

In the first of the educational meetings, the Office of the Chief Financial Officer provided an overview of the financial systems, indicating how they fit within the context of other official systems, as well as the user's personal financial systems. In the second session, Cost Accounting described how reference numbers are used in the financial systems.

Progress on all phases of the IFS project will be reported at the FACET meetings held on the second Wednesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

## PERSONAL COMPUTING

### **RECOMMENDED ETHERNET BOARDS FOR IBM AND MACINTOSH PERSONAL COMPUTERS**

CTD advises users to consider three factors when selecting an Ethernet board for connecting IBM Personal Computers (PCs), PC clones, IBM PS/2s, and Apple Macintoshes to Ethernet local area networks (LANs): connectivity, software compatibility, and computer type.

Networks like DEC Pathworks, 3Com 3+Open, and MS-Lan Manager will use any Network Driver Interface Specification (NDIS) Ethernet card. NDIS is a device driver specification developed by 3Com and Microsoft. Besides providing hardware and protocol independence for network drivers, NDIS is compatible with both DOS and OS/2 and offers multiplexing so that multiple protocol stacks can coexist in the same host. 3Com is also the leading vendor in Ethernet cards for the PC.

Table 1 lists the software compatibility of the recommended Ethernet cards for the indicated networks.

Further 3Com Etherlink information (with part numbers in parentheses) follows:

- 3Com Etherlink II (3C503): Half-size 8-bit board, NDIS compatible.
- 3Com Etherlink 16 (3C507): Full-size 16-bit board, NDIS compatible, high-performance board.
- 3Com Etherlink/MC (3C523): Microchannel 16-bit board, NDIS compatible.
- 3Com Etherlink/MC 32 (3C527): Microchannel 32-bit board, NDIS compatible, high-performance board.
- 3Com Etherlink/SE (3C563): Apple Macintosh SE compatible board, 10 Mbits/s.
- 3Com Etherlink/NB (3C543): Apple Macintosh II compatible board, 10 Mbits/s, NuBus.
- 3Com Etherlink boards have transceiver distance ratings at 1,000 feet over thin Ethernet cable and 3,200 feet over thick Ethernet cable. These figures are about twice the figures of the competing Ethernet boards and the IEEE standard that is 600 feet over thin Ethernet cable and 1,640 feet over thick Ethernet cable.

### **HOW TO USE VAX CLUSTER PRINTERS FROM PERSONAL COMPUTERS**

Users with IBM Personal Computers (PCs) and compatibles that run the Pathworks (a.k.a. PCSA) product from Digital Equipment Corporation can send files for printing to any of the Argonne central VAX printers. The printers include central printers (such as the IBM 3800 high-speed laser page printer and the microfiche printer) and distributed PostScript printers and text printers that have queues on the central VAX. Currently, there are 37 printers located in Argonne divisions that have print queues handled by the AlisaPrint software (printers on AppleTalk), the MultiNet remote printing software (printers on Unix computers), and other software systems. This article describes how to access these printers. Future articles will describe how to access file and disk services in the Argonne central VAX cluster and to use other capabilities of the Pathworks PC and MAC LAN product, such as electronic mail and X Window.

Table 1: Software Compatibility of Recommended Ethernet Cards for IBM and Apple

Macintosh Personal Computers	3COM	LAN MANAGER	NOVELL	DEC PATHWORKS	SUN NFS	TELNET
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**For PC-XT, PC-AT, PS/2 Model 30, 386, 486, EISA:**

Etherlink II 3C503	Y	Y	Y	Y	Y	Y
Etherlink 16 3C507	Y	Y	Y	Y	Y	Y

**For PS/2 Models 50, 60, 70, 80, 90:**

Etherlink MC 3C523	Y	Y	Y	Y	Y	Y <sup>1</sup>
Etherlink MC/32 3C527	Y	Y	Y <sup>2</sup>	Y	Y	N

**For Macintosh SE:**

Etherlink SE 3C563	Y	N <sup>3</sup>	Y	N	--	Y
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**For Macintosh IIX (NuBus):**

Etherlink NB 3C543	Y	N <sup>3</sup>	Y	Y	--	Y
--------------------	---	----------------	---	---	----	---

Y = compatible

N = not compatible

<sup>1</sup>Incompatibilities exist for 3C523 cards using Telnet while logged on to 3Com 3+Share networks.<sup>2</sup>Will work as a Netware 386 server; 386 client and Netware 286 drivers will be available this year.<sup>3</sup>The Apple Macintosh product is not currently available in LAN Manager 2.0. However, LAN Manager 2.X will include this product.

To access Argonne central VAX cluster printers, you need to obtain a VAX cluster account from Account Services (Building 221, Room A-147, extension 2-5425). However, you do not need to login to the cluster to use the printers. You can redirect your output to a logical printer (LPTn:) with the USE command:

```
USE LPTn: \\ANLCV1\queuenam&username *
```

where "n" is a number from 1 to 4, "queuenam" is the name of the VAX cluster print queue, and "username" is your account name. We recommend using

the asterisk rather than the value of your VAX cluster account password. If you use the asterisk, the system will prompt you for your password and will not display your response on your monitor screen. You can place the USE command in a .BAT file. If you do, you need to substitute two percent symbols (%) for the single one above. If you use this form of the USE command, your username will appear on the flag pages of your printed output.

To establish redirection of your printed output directed to LPT1: for the IBM 3800 print queue with user account B12345 for inclusion in your



AUTOEXEC.BAT file, enter:

```
USE LPT1: \\ANLCV1\3800%B12345 *
```

To print to the queue from your personal computer, either configure your software system to print to LPT1: or enter the Pathworks print command:

```
NET PRINT filename.typ LPT1:
```

In the former case, when you select the printing option from a menu or by some other mechanism, the print file will be redirected to the VAX cluster queue for printing.

You can access most of the options associated with the VAX queue from your PC as well. The best mechanism to use is to associate the queue options with the device by using the /SET function. Then the options will be in effect whether you print from the command line or from your application. (From the command line you can also override option values by substituting new values.) To associate print queue options with your logical device LPTn:, you execute the command with the /SET function:

```
NET PRINT LPTn: /SET /option ...
```

To establish the logical device LPT1: for PostScript output, execute the following:

```
NET PRINT LPT1: /SET /FORM=PS_PLAIN
/PARAM:"DATA_TYPE=POSTSCRIPT"
```

Or for printing text files to logical device LPT2:, enter:

```
NET PRINT LPT2: /SET /FORM=LTR_12
/PARAM:"DATA_TYPE=TEXT"
```

Use the /SHOW function to display the options that you have established for your logical device LPTn:

```
NET PRINT LPTn: /SHOW
```

Most of the AlisaPrint queues default to text with the 12-pitch form; some queues (such as the Graphics Arts queues) default to PostScript. You will get the proper options for your applications if you actively set your own choices with the above commands rather than accepting the existing defaults. Note that if you need to print both text and

PostScript, you can define multiple pseudo-devices (LPT1:, LPT2:, etc.) that redirect print files to the same VAX queue but have distinct options set.

The widest range of print forms is available for the AlisaPrint printer queues. Most other print queues print either text or PostScript but not both. Table 2 shows the options available for AlisaPrint queues and describes the results.

For a list of VAX print queue options that are available from the PC and to learn more about the USE and PRINT commands, enter the Pathworks HELP command at your PC.

Table 2: AlisaPrint Queue Options

DATA_TYPE	FORM	DESCRIPTION
POSTSCRIPT	PS_PLAIN	All PostScript, 8 1/2 x 11
TEXT	LTR_10	Portrait, 10 pitch
TEXT	LTR_12	Portrait, 12 pitch
TEXT	LPT_PLAIN	Landscape, line printer size
TEXT	LPT_GRAY	Landscape, line printer size with gray bars

## BITS & BYTES

### CTD NO LONGER PROCESSES COPIES OF MICROFICHE ONSITE

CTD is decommissioning its Diazo microfiche copier as a cost saving and environmental and health protection measure. The unit costs \$5,500 a year to maintain, generates ammonia fumes, and was used almost exclusively by the Library for their card catalog system, which the Argonne Information Management (AIM) System replaced. Our records indicate that we are now unlikely to need to produce more than a few dozen Diazo copies a year. Two other former users of large numbers of Diazo copies have switched to multiple originals of microfiche to save time. CTD recommends users create multiple originals when they run their jobs. Users who need assistance to produce copies of microfiche should contact User Services at extension 2-5405.

## RECENTLY UPDATED AND PUBLISHED DOCUMENTS

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy):

### Computing and Telecommunications Documents

*The Advanced Software Development and Commercialization Project: Progress Report PR-2* (ANL/TM 488) is the second of a series of reports pertaining to progress in the Advanced Software Development and Commercialization Project, a collaborative effort between the Center for Supercomputing Research and Development of the University of Illinois and CTD. The purpose of this work is to apply techniques of parallel computing, many of which were pioneered by University of Illinois researchers, to mature computational fluid dynamics (CFD) and structural dynamics (SD) computer codes developed at Argonne.

### Digital Equipment Corporation Documents

*The VMS DCL Dictionary: Part I* (AA-PBK5A-TE) is Part I of a two-part document. It contains Digital Command Language (DCL) commands beginning with the letters A to M, as well as lexical functions. The remaining commands are in Part II. This document is for all users of the VMS operating system. This document supersedes the *VMS DCL Dictionary*, Version 5.3.

*The VMS DCL Dictionary: Part II* (AA-PBK6A-TE) is Part II of a two-part document. It contains DCL commands beginning with the letters N to Z. The remaining commands and the lexical functions are in Part I. This document is for all users of the VMS operating system. This document supersedes the *VMS DCL Dictionary*, Version 5.3.

### University of Chicago Documents

*The University of Chicago Agreements with Personal Computer Vendors* (August 7, 1991) contains the latest lists of personal computer discounts available through the University of Chicago to Argonne

employees for both personal and Laboratory purchases. This revised price list supersedes the price list of July 9, 1991.

## ERRATUM: NSFNET T3 LINK OPERATIONAL

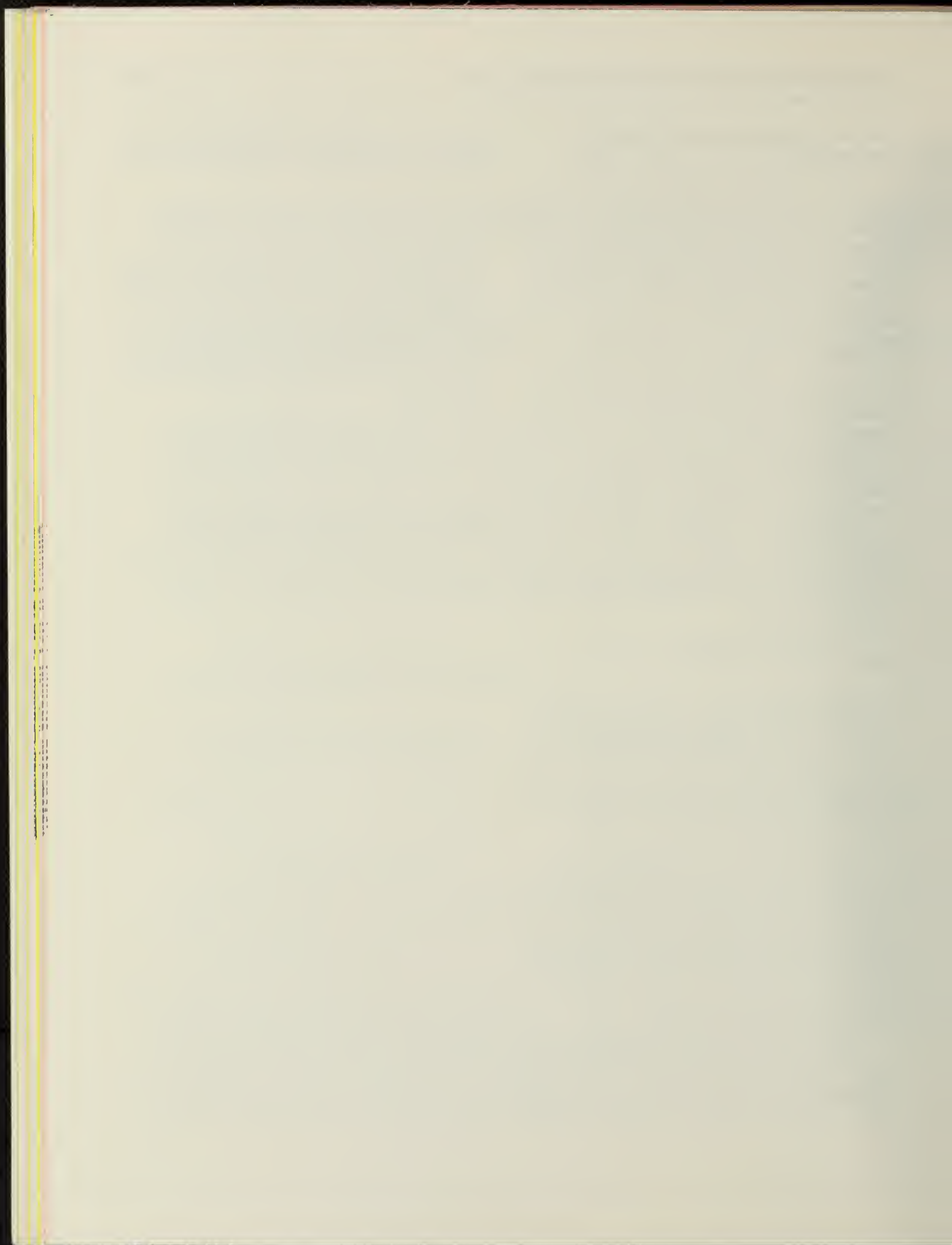
In "NSFnet T3 Link Operational" in the August 1991 *Newsletter*, we stated that the National Science Foundation network (NSFnet) switching node at Argonne is connected to the NSFnet backbone at a 1.544 megabits per second transmission speed. The correct transmission speed is 45 megabits per second. We regret any confusion that this error may have caused.

## USERS GROUP HIGHLIGHTS

### MINUTES OF COMPUTER USERS GROUP

There was no Computer Users Group meeting in August 1991.





# WORKLOAD STATISTICS (JUNE 28 THROUGH JULY 30, 1991)

## NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	END OF MONTH	ACTIVE DURING MONTH
CMS	1,217	1,223	427
Wylbur	1,664	1,670	328
MVS TSO	57	57	17
CICS	2,281	2,307	175
MVS Batch	2,281	2,307	637
VAX/VMS	664	685	287
Cray	361	365	133
All Systems	2,281	2,307	1,026

## INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				SESSION	CPU
	PRIME	NIGHT	WEEKEND	TOTAL	TIME (HRS)	TIME (HRS)
<b>INTERACTIVE</b>						
CMS	11,272	2,385	2,069	15,726	44,048.3	104.34
Wylbur	5,884	209	283	6,376	6,269.4	4.77
MVS TSO	428	7	8	443	571.6	1.20
CICS	*	*	*	*	*	*
VAX/VMS	7,513	449	660	8,622	13,355.4	410.40
Cray	1,602	255	262	2,119	5,918.3	396.43
<b>IBM BATCH</b>						
Class U	6,999	1,840	1,225	10,064	**	45.93
Class W	13,975	1,573	839	16,387	**	83.98
Class X	6	645	108	759	**	25.19
Class Y	0	0	1,785	1,785	**	21.59
Nonmain	19,485	3,692	2,825	26,002	**	0.00
Total	40,465	7,750	6,782	54,997	**	176.69
<b>CRAY BATCH</b>						
u	1,602	255	262	2,119	**	133.92
w	3,953	201	294	4,448	**	56.18
x	1,445	198	208	1,851	**	69.30
y	534	152	283	969	**	93.23
Total	7,534	806	1,047	9,387	**	352.63
<b>VMS BATCH</b>						
W BATCH	528	233	116	877	**	31.87
X BATCH	4	24	17	45	**	244.03
Y BATCH	0	0	0	0	**	44.83
Total	532	257	133	922	**	320.73

## INPUT/OUTPUT

Lines Printed	53,941,012
Local	50,536,184
Remote	43,645,515
Fiche	30,744
Cards Punched-Local Only	6,071
Tape Mounts	4,767
Microfiche Developed	920,493
Microfiche Frames Developed	

## GRAPHICS

	# OF JOBS	# OF FRAMES
CalComp Jobs	17	*
Matrix 35mm Color	133	274
Matrix-8 x 10	0	0
Matrix-Negative	3	6

## DATA MANAGEMENT

Tapes Stored	24,517
New Tapes Saved	133
Tapes Released	1,183
Datasets Exported to Tape	567
Datasets Imported from Tape	466

\* not available

\*\* not applicable



AVAILABILITY STATISTICS, BY MACHINE (JUNE 28 THROUGH JULY 30, 1991)

	Monthly Totals	Hardware	Scheduled Software	Other	Hardware	Unscheduled Software	Other
CMS							
All Shifts							
Interruptions	2.00	0.00	2.00	0.00	0.00	0.00	0.00
Hrs Unavailable	4.00	0.00	4.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
NYLBUR							
All Shifts							
Interruptions	6.00	0.00	6.00	0.00	0.00	0.00	0.00
Hrs Unavailable	5.13	0.00	5.13	0.00	0.00	0.00	0.00
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
NVS TSO							
All Shifts							
Interruptions	6.00	0.00	6.00	0.00	0.00	0.00	0.00
Hrs Unavailable	5.13	0.00	5.13	0.00	0.00	0.00	0.00
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
JES3							
All Shifts							
Interruptions	6.00	0.00	6.00	0.00	0.00	0.00	0.00
Hrs Unavailable	4.85	0.00	4.85	0.00	0.00	0.00	0.00
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
CICS							
All Shifts							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
VAX/VMS (VAX 8700)							
All Shifts							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
CRAY							
All Shifts							
Interruptions	10.00	4.00	4.00	0.00	1.00	1.00	0.00
Hrs Unavailable	26.61	14.46	6.75	0.00	5.08	0.31	0.00
MTF/Unscheduled	382.69				765.38	765.38	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2.00	0.00	0.00	0.00	1.00	1.00	0.00
Hrs Unavailable	5.40	0.00	0.00	0.00	5.08	0.31	0.00
MTF/Unscheduled	135.30				270.60	270.60	

# COMPUTING CENTER USE IN DOLLARS BY COST CENTER (JUNE 28 THROUGH JULY 30, 1991)

CC	CENAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
ADVANCED PHOTON SOURCE							
130	ADVANCED PHOTON SOURCE DIV	\$229	\$363	\$0	\$427	\$103	\$1,122
272	ADVANCED PHOTON SOURCE	\$140	\$0	\$0	\$31	\$75	\$247
340	APS DIVISION MANAGEMENT	\$14	\$0	\$0	\$0	\$93	\$108
341	APS ACCELERATOR PHYSICS	\$279	\$6,451	\$0	\$21	\$242	\$7,024
342	APS DIAGNOSTICS	\$0	\$17	\$0	\$0	\$38	\$55
343	APS LINAC	\$0	\$155	\$0	\$1	\$0	\$156
344	APS RF	\$29	\$31	\$0	\$8	\$54	\$97
345	APS VACUUM	\$50	\$2,113	\$0	\$178	\$472	\$2,793
347	APS CONTROLS	\$64	\$1	\$0	\$0	\$7	\$111
348	APS MAGNETS	\$31	\$3	\$0	\$0	\$44	\$31
349	APS POWER SUPPLIES	\$12	\$0	\$0	\$0	\$15	\$27
350	APS DIVISION MANAGEMENT	\$54	\$81	\$0	\$7	\$46	\$188
351	APS INSERTION DEVICES	\$51	\$1,709	\$0	\$48	\$3,171	\$4,978
352	APS BEAM LINE FRONT ENDS	\$17	\$186	\$0	\$0	\$209	\$413
353	APS BEAM LINE INSTRUMENTATION	\$14	\$0	\$0	\$34	\$0	\$48
360	APS CONVENTIONAL FACILITIES	\$33	\$0	\$0	\$1	\$30	\$64
361	APS PROJECT DIRECTION	\$15	\$0	\$0	\$0	\$29	\$45
362	APS MANAGEMENT GENERAL	\$15	\$0	\$0	\$0	\$0	\$15
SUBTOTAL		\$1,035	\$11,109	\$1	\$785	\$4,632	\$17,563
ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH							
110	BIO & MED RES DIV	\$2,350	\$760	\$101	\$1,141	\$2,191	\$6,543
125	TECHNOLOGY TRANSFER CENTER	\$115	\$42	\$0	\$22	\$127	\$304
149	ENVIRONMENTAL RESEARCH DIV	\$1,369	\$542	\$119	\$1,371	\$625	\$4,026
155	ENERGY SYSTEMS DIVISION	\$4,856	\$2,066	\$2,951	\$2,120	\$758	\$12,752
165	ENV ASSESS & INFO SCI DIV	\$3,105	\$5,874	\$130,259	\$716	\$4,014	\$143,968
174	ENR/ENV/BIO PROG DIR	\$12	\$0	\$0	\$0	\$101	\$113
246	ENR/ENV/BIO SOFTWARE CTR	\$65	\$0	\$239	\$669	\$502	\$1,475
274	ENR/ENV/BIO RES PROG ADM	\$207	\$0	\$0	\$4	\$250	\$462
SUBTOTAL		\$12,078	\$9,284	\$133,670	\$6,043	\$8,568	\$169,643
ENGINEERING RESEARCH							
102	EBR-II PROJECT-ANL WEST	\$2,114	\$14	\$1,539	\$2,182	\$109	\$5,957
104	FUELS AND PROCESSES	\$5,500	\$124	\$2	\$648	\$115	\$6,390
107	CHEMICAL TECHNOLOGY DIVISION	\$645	\$584	\$0	\$720	\$27	\$2,785
112	REACTOR ENGINEERING	\$7,144	\$1,333	\$1,725	\$2,875	\$3,057	\$16,134
114	MATLS & COMP TECH DIV	\$4,584	\$4,959	\$869	\$2,554	\$3,935	\$16,901
115	ENGINEERING PHYSICS DIVISION	\$5,139	\$1,269	\$6,238	\$1,635	\$1,795	\$16,076
116	REACTOR ANALYSIS	\$34,889	\$8,325	\$45,733	\$13,628	\$10,594	\$113,169
117	APPLIED PHYSICS-ANL WEST	\$2,050	\$30	\$6,733	\$214	\$483	\$9,511
118	REACTOR EXP & EXAM DIV	\$4,781	\$3,567	\$6,263	\$362	\$673	\$15,646
171	ENRG RES PROG DIR	\$3	\$0	\$0	\$14	\$107	\$110
197	SPECIAL PROJECTS OFFICE	\$281	\$9	\$0	\$16	\$166	\$470
211	ENGINEERING PHYSICS DIVISION	\$63	\$20	\$0	\$6	\$3,068	\$3,168
269	CHEM TECH DIV-ANALYTICAL CHEM	\$124	\$1	\$0	\$6	\$118	\$249
271	ENRG RES PROG ADMIN	\$282	\$0	\$0	\$38	\$372	\$692
SUBTOTAL		\$67,599	\$20,234	\$69,103	\$25,008	\$25,312	\$207,257
PHYSICAL RESEARCH							
105	MATERIALS SCIENCE DIVISION	\$697	\$9,094	\$5,963	\$2,098	\$710	\$18,561
109	PHYSICS DIV	\$1,731	\$1,108	\$23	\$1,237	\$843	\$5,002
120	CHEMISTRY DIV	\$885	\$14,045	\$18,326	\$489	\$500	\$34,245
136	INT PULSE NEUT SOURCE PROG	\$124	\$1,123	\$6,868	\$440	\$432	\$8,987
137	HIGH ENERGY PHYSICS DIV	\$388	\$1,584	\$3,717	\$764	\$1,075	\$7,527
139	DIV OF EDUCATIONAL PROGRAMS	\$229	\$91	\$0	\$89	\$225	\$634
145	MATHEMATICS & COMPUTER SCI DIV	\$110	\$99	\$2,202	\$2,322	\$4,597	\$9,331
146	CTD DIV - SCI APPL & RES	\$34	\$138	\$314	\$135	\$231	\$853
273	PHYSICAL RESEARCH PROGRAM ADMIN	\$46	\$0	\$0	\$19	\$116	\$181
SUBTOTAL		\$4,246	\$27,282	\$37,412	\$7,653	\$8,728	\$85,321
EXTERNAL							
751	FERMI NATIONAL LABORATORY	\$677	\$0	\$0	\$1,027	\$574	\$2,278
752	NAVY	\$7,478	\$0	\$0	\$1,389	\$5,395	\$14,261
753	MORGANTOWN ENERGY TECH CENTER	\$13	\$0	\$0	\$0	\$0	\$13
754	DEPARTMENT OF ENERGY AT ANL	\$0	\$10	\$0	\$12	\$0	\$22
760	ABBOTT LABORATORIES	\$3	\$0	\$55	\$0	\$0	\$58
763	GENERAL ELECTRIC COMPANY	\$0	\$1	\$0	\$0	\$0	\$1
766	BECHTEL NATIONAL, INC.	\$0	\$75	\$411	\$4	\$1	\$491
775	SMITHSONIAN	\$0	\$0	\$0	\$0	\$4	\$4
777	UNIVERSITY OF CHICAGO AT ANL	\$18	\$0	\$0	\$151	\$0	\$169
778	ARGONNE CREDIT UNION	\$7	\$0	\$0	\$0	\$0	\$7
779	UNIVERSITY OF ILLINOIS AT CHICAGO	\$13	\$0	\$0	\$0	\$8	\$21
780	NEW BRUNSWICK LABORATORY	\$0	\$0	\$0	\$0	\$9	\$10
781	STATE OF ILL. DEPT. MENTAL HEALTH	\$0	\$0	\$0	\$0	\$0	\$0
782	PACKER ENGINEERING	\$3	\$41	\$0	\$6	\$15	\$45
783	WEST VALLEY NUCLEAR SERVICES CO	\$233	\$56	\$187	\$0	\$0	\$255
784	SUPERCONDUCTING SUPER COLLIDER LABS	\$0	\$503	\$129	\$44	\$0	\$243
787	ILLINOIS INSTITUTE OF TECHNOLOGY	\$0	\$0	\$0	\$0	\$0	\$676
SUBTOTAL		\$8,453	\$686	\$782	\$2,633	\$6,006	\$18,559



CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
OPERATIONS							
143	SUPP SERV DIV - ELEC DEPT	\$223	\$4	\$0	\$343	\$462	\$1,032
148	HUMAN RESOURCES-MEDICAL DEPT	\$1,026	\$0	\$0	\$133	\$478	\$1,638
150	SUPPORT SERV DIV - SPEC MATLS	\$227	\$0	\$0	\$33	\$169	\$429
161	TECH INFO SERVICES DEPT	\$630	\$26,530	\$0	\$3,181	\$924	\$31,265
201	OFFICE OF THE DIRECTOR	\$479	\$0	\$0	\$138	\$206	\$823
202	OFC OF CHIEF OPER OFCR	\$15	\$0	\$0	\$87	\$105	\$206
210	SUPP SERV DIV - CENT SHOPS	\$447	\$0	\$0	\$83	\$696	\$1,226
216	SUPPORT SERVICES DIVISION	\$105	\$0	\$0	\$42	\$110	\$257
222	PLANT FAC & SERV-LODGING FAC	\$0	\$0	\$0	\$13	\$100	\$113
232	SUPPORT SERV DIV - SECURITY	\$295	\$0	\$0	\$0	\$135	\$430
234	SUPP SERV DIV-HEALTH PHY	\$344	\$87	\$0	\$121	\$293	\$845
235	SUPP SERV DIV-ENV SAFE HEALTH	\$1,174	\$55	\$0	\$155	\$609	\$1,992
236	SUPPORT SERV DIV - FIRE DEPT	\$4	\$0	\$0	\$0	\$166	\$170
245	COMPUTING AND TELECOM DIV	\$28,254	\$7	\$0	\$4,249	\$3,060	\$35,569
247	COMP & TEL DIV - COM SERV	\$3,173	\$0	\$0	\$581	\$1,758	\$5,512
260	SUPP SERV DIV-GRAPHIC ARTS	\$330	\$703	\$0	\$28	\$309	\$1,370
265	ELECTRONIC PUBLISHING SERVICE	\$3	\$4	\$0	\$0	\$0	\$8
275	OFFICE OF PUBLIC AFFAIRS	\$747	\$0	\$0	\$90	\$210	\$1,047
276	OFC PUB AF - MOTN PIC UNIT	\$39	\$0	\$0	\$0	\$18	\$56
296	TELECOM COST/RECOVERY	\$0	\$0	\$0	\$5	\$0	\$5
315	SUPP SERV DIV-MATLS & SERV	\$2,787	\$0	\$0	\$1,010	\$600	\$4,396
316	PLANT FAC & SERV-VEH MAINT	\$0	\$0	\$0	\$0	\$175	\$175
317	PLANT FAC & SERV-DRIV&RIG SERV	\$17	\$0	\$0	\$1	\$102	\$121
319	SUPP SERV DIV-TRAVEL OFC	\$3	\$0	\$0	\$0	\$100	\$103
322	SUPP SERV DIV-PROCUREMENT	\$40	\$0	\$0	\$0	\$103	\$144
333	QA, ENVIR & SAFETY OFC	\$106	\$1	\$0	\$27	\$227	\$360
336	SUPP SERV DIV - INSPECTION	\$10	\$2	\$0	\$0	\$2	\$14
400	OFC OF CHIEF FIN OFFICER	\$44,157	\$0	\$0	\$3,559	\$13,594	\$61,310
401	ACCOUNTING	\$0	\$0	\$0	\$42	\$100	\$142
402	OFC CHIEF FIN OFCR-DATA ENTRY	\$10	\$0	\$0	\$150	\$0	\$160
403	BUDGET OFFICE	\$0	\$0	\$0	\$0	\$100	\$100
410	HUMAN RESOURCES DEPARTMENT	\$12,499	\$0	\$0	\$1,283	\$1,868	\$15,650
412	AFFIRM ACTION PROGRAM	\$59	\$0	\$0	\$45	\$101	\$204
501	PLANT FAC & SERV-BLDG MAINT	\$48	\$0	\$0	\$45	\$878	\$971
502	PLANT FAC & SERV-INSTALLATIONS	\$26	\$0	\$0	\$3	\$101	\$130
503	PLANT FAC & SERV-GROUNDS	\$0	\$0	\$0	\$0	\$100	\$100
504	PLANT FAC & SERV-CUSTODIAL	\$3	\$0	\$0	\$0	\$100	\$103
505	PLANT FAC & SERV-WASTE MGMT OP	\$55	\$0	\$0	\$67	\$100	\$222
506	PLANT FAC & SERV-PLANT MGR OFC	\$356	\$0	\$0	\$6	\$322	\$685
510	PLANT FAC & SERV-UTILITY SYST	\$0	\$0	\$0	\$0	\$100	\$100
512	PLANT FAC & SERV-FAC PLNG/ENG	\$564	\$0	\$0	\$20	\$155	\$738
530	SITE MGRS OFC-ANL WEST	\$153	\$6	\$0	\$3	\$103	\$264
531	PERSONNEL-ANL WEST	\$218	\$0	\$0	\$22	\$100	\$340
532	SPECIAL MATLS-ANL WEST	\$863	\$0	\$0	\$190	\$306	\$1,360
533	ACCOUNTING-ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
534	PURCHASING-ANL WEST	\$0	\$0	\$0	\$0	\$101	\$101
535	SECURITY - ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
536	SAFETY STAFF-ANL WEST	\$156	\$0	\$0	\$0	\$103	\$259
537	INFORMATION SERVICE-ANL WEST	\$0	\$103	\$0	\$27	\$100	\$230
538	MATLS HANDLING-ANL WEST	\$133	\$0	\$0	\$10	\$100	\$243
548	ANL WEST GENERAL EXPENSE	\$104	\$0	\$0	\$37	\$2	\$143
550	COMPUTER APPL & SERV - ANL-W	\$115	\$27	\$0	\$14	\$102	\$258
554	MACHINE SHOP-ANL WEST	\$30	\$0	\$0	\$4	\$100	\$134
556	SITE ENGRG-ANL WEST	\$93	\$0	\$0	\$10	\$100	\$203
557	PLANT SERVICES-AW-SERVICE REQ	\$62	\$3	\$0	\$7	\$100	\$172
558	PLANT SERVICES-AW-FUNCTION	\$3	\$0	\$0	\$0	\$0	\$3
561	OFC OF QUALITY ASSURANCE - AW	\$3	\$0	\$0	\$0	\$101	\$105
SUBTOTAL		\$100,190	\$27,533	\$0	\$15,922	\$30,351	\$173,996
TOTAL		\$193,602	\$96,128	\$240,968	\$58,044	\$83,597	\$672,339

## COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	Onsite (Illinois)	Onsite (Idaho)	Offsite (Area Code 708)
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	n.a.	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		

### CICS, CMS, Wylbur, and TSO Interactive Computing Services

IBM 3270 Protocol Converter	2-3270	n.a.	972-3270
1200 to 19.2K Bits Per Second (Onsite)			972-3219
1200 to 2400 Bits Per Second (Offsite)			
9600 to 19.2K Bits Per Second (Offsite)			
X.25 Terminal Multiplexor	2-2525	n.a.	972-2525
300 to 19.2K Bits Per Second (Onsite)			972-2519
1200 to 2400 Bits Per Second (Offsite)			
9600 to 19.2K Bits Per Second (Offsite)			
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	n.a.	972-2212
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	n.a.	972-7612
300 Bits Per Second	2-7603*	n.a.	972-7603*

\* When using a 300 bits per second modem, you must use a capital "P" to logon.

### Batch Remote Job Entry Service

2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573

### Central DEC VAX Cluster

1200 to 19.2K Bits Per Second (Onsite)	2-8700	n.a.	972-8700
1200 to 2400 Bits Per Second (Offsite)			972-8745
9600 to 19.2K Bits Per Second (Offsite)			

### Argonne TCP/IP Network

1200 to 19.2K Bits Per Second (Onsite)	2-5588	n.a.	972-5588
1200 to 2400 Bits Per Second (Offsite)			972-4726
9600 to 19.2K Bits Per Second (Offsite)			

### Argonne MFEnet Dial-Up

300 to 19.2K Bits Per Second	2-7920	n.a.	972-7920
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### Tymnet Commercial Packet-Switching Network

Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.

## COMPUTING CENTER SERVICE SCHEDULE (All Times Are Central Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	VM/XA	VMS	MFEnet Gateway
Monday to Thursday	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

\*\* Except for the interruption of UNICOS from 4:00 a.m. until 8:00 a.m. on Mondays for maintenance, service continues uninterrupted past 4:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 3:00 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 3:00 p.m. before making plans that require the availability of a service the following morning.



[illegible]

## SUBJECT INDEX FOR CALENDAR YEAR 1991 (9/91)

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Argonne National Laboratory  
Computing and Telecommunications Division  
September and October 1991

## COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering seven classes. There is no charge for attending classes, unless otherwise indicated. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the class and notify attendees of any schedule changes. CTD will reschedule or cancel any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

### INTRODUCTION TO COMPUTING FACILITIES AND SERVICES

Goals:	To develop an overview of available computing facilities and services provided by CTD.
Length of Class:	One 3-hour session
Date and Time:	September 11, 1991 (Wednesday), 9:00 a.m. to noon
Location:	Building 221, Room A-261
Suggested Reading:	<i>Guide to Computing at ANL</i> (ANL/TM 336, REVISION 2) <i>Recommended Documentation for Computer Users at ANL</i> (ANL/TM 379, REVISION 2) <i>Guide to Telecommunications at ANL</i> (ANL/TM 422, REVISION 1)
Instructor:	Fred Moszur

### INTRODUCTION TO VAX/VMS

Goals:	To learn some basic concepts on VAX/VMS (including how to logon to VMS, create files, set up subdirectories, compile and link programs, submit batch jobs, use the online HELP facilities, and access the companion computer-based instruction courses in VMS).
Length of Class:	One 3-hour session
Date and Time:	September 12, 1991 (Thursday), 9:00 a.m. to noon
Location:	Building 221, Room A-261
Suggested Reading	<i>VMS User's Manual</i> (AA-LA98B-TE)
Instructor:	Dave Lifka



## INTRODUCTION TO UNIX

- Goals:** To learn the basic concepts required for using Unix computer systems. This class will be a general overview of Unix commands, editing, and file systems and will demonstrate topics from logging on to creating, compiling, and executing a program.
- Length of Class:** Three 3-hour lectures and three 1-hour labs
- Dates and Time:** September 16, 17, and 18 (Monday, Tuesday, and Wednesday)  
9:00 a.m. to noon (Lecture)  
One-hour Lab each afternoon
- Location:** Building 221, Room A-216 (Lecture)  
Building 221, Room A-261 (Lab)
- Suggested Reading:** *A Practical Guide to the Unix System* (0-8053-0243-3)
- Instructor:** Dave Leibfritz

## PROGRAMMING IN VAX/VMS

- Goals:** To learn to use the VAX/VMS system. This class will include VAX Fortran programs, suggestions for writing basic Digital Command Language (DCL) command procedures (including a LOGIN.COM), the usage of the VMS system debugger and the interprocess communications features, and an overview of the aspects of VMS internals affecting program performance.
- Length of Class:** One 3-hour session
- Date and Time:** September 17, 1991 (Tuesday), 9:00 a.m. to noon
- Location:** Building 221, Room A-261
- Instructor:** Dave Lifka

## INTRODUCTION TO UNICOS (RESCHEDULED)

- Goals:** To learn the basics of the Cray UNICOS file system, space management, and shell programming. To learn how to use the Network Queueing System (NQS) for Cray batch processing and how to submit work and to manage Cray files from the IBM MVS front-end station and the Laboratory-Wide Local Area Network.
- Length of Class:** One 3-hour session
- Date and Time:** October 1, 1991 (Tuesday), 1:30 p.m. to 4:30 p.m.
- Location:** Building 221, Room A-261
- Suggested Reading:** *A Practical Guide to the Unix System* (0-8053-0243-3)  
*UNICOS Primer* (SG-2010 6.0)  
*ANL Supplement to the UNICOS Primer* (ANL/TM 460)
- Instructor:** Steve Karlovsky

## INTRODUCTION TO WYLBUR FOR MVS BATCH COMPUTING

Goals: To learn to use Wylbur, an interactive system that provides a convenient interface for IBM MVS batch processing. To learn about the IBM MVS batch system at Argonne (including how to compile and execute programs and obtain printer output). Wylbur is efficient, easy-to-learn, and powerful for editing data and programs and for submitting jobs for IBM batch execution.

Length of Class: One 3-hour lecture with lab

Date and Time: September 24, 1991 (Tuesday), 9:00 a.m. to noon

Location: Building 221, Room A-261

Suggested Reading: *SLAC Wylbur Tutorial*  
*OBS Wylbur Reference Manual*

Instructor: Mike Thommes

## USING CMS WITH IBM 3270-COMPATIBLE DISPLAY TERMINALS

Goals: To learn to use CMS with an IBM 3270-compatible display terminal, an IBM or Apple Macintosh personal computer with NCSA tn3270, or an ASCII terminal capable of using the Hydra Protocol Converter. To learn to send and receive electronic mail; to write documents and memos; to organize information in files; to create program, text, and data files; to manipulate files with the editor; to invoke programs like statistical and graphic packages; and to get printed reports.

Length of Class: Two 3-hour lectures with labs

Dates and Time: September 24 and 25, 1991 (Tuesday and Wednesday),  
1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-261

Suggested Reading: *IBM Virtual Machine/Extended Architecture System Product VM/XA SP, Release 1 and Release 2: CMS Primer (SC23-0368-0)*  
*CMS at ANL (ANL/TM 423, REVISION 2)*

Instructor: Pete Bertoncini

## COMPUTER-BASED TRAINING COURSES

Currently, CTD offers one computer-based training course in CMS and five courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

### IBM CBT Course

(Enter SLFTEACH at the CMS prompt.)

SLFTEACH Introduction and Advanced Concepts of Xedit

### DEC CBT Courses on the Central VAX 8700

(Enter RUN "course name" at the DCL level.)

Course Name	Course Title
VMSCAI	Introduction to VAX/VMS
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers

To register for a class, call extension 2-5405.



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# ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division

VOLUME 22

NUMBER 10

OCTOBER 1991

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NOV 04 1991

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UNIVERSITY OF ILLINOIS

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Computing Center Workshop



"First Among Equals"

Only you can do it !



# COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory

Building 221

Argonne, Illinois 60439-4844

FAX: 708-972-5983

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

		Room	Phone	Electronic Mail Address
Division Director	David Weber	A251	2-7155	B22788 AT ANLVM
Computer Protection Program Manager	Jean Troyer	A237	2-7440	B18216 AT ANLVM
Computing and Telecommunications Operations	Larry Amiot	B243	2-5432	B10523 AT ANLVM
Computer Network	Bob McMahon	B239	2-7270	B17385 AT ANLVM
Data Communications	Linda Winkler	B251	2-7236	B32357 AT ANLVM
Service Engineering	Paul Phillips	D118	2-4343	B36679 AT ANLVM
Computer Operations	Gary Schlesselman	A113	2-5437	B09819 AT ANLVM
Network Operations Center		A134	2-5421	NOC AT ANL.GOV
Day and Weekend Operation	Bob Bilshausen	A134	2-5421	
Document Distribution Counter		A134		
Evening and Overnight Operation	Mike Monczynski	A134	2-5421	
Tape Librarian	Sandra Vasko	A134	2-7681	B18669 AT ANLVM
Systems Programming	John Volmer (Acting)	B211	2-5449	B32831 AT ACHILLES.CTD.ANL.GOV
Telephone Services	Allen Winter	B247	2-2764	B07059 AT ANLVM
User Services	Fred Moszur	A121	2-7419	B27564 AT ANLVM
Computer Use Authorizations	Fran Carnaghi	A147	2-5425	B27596 AT ANLVM
Consultants		A139	2-5405	CONSULT AT ANLVM
Documentation Advice		A139	2-5405	CONSULT AT ANLVM
Education and Assistance	Pete Bertoncini (Acting)	E101	2-4827	B15013 AT ANLVM
Management Information Systems	Diane O'Brien	B151	2-7167	B26424 AT ANLVM
Financial Systems	Nick Moore	D239	2-8075	B31048 AT ANLVM
Human Resource Systems	Bob Hischier	B147	2-7272	B22639 AT ANLVM
Information and Production Services	Miriam Bretscher	B139	2-7252	B26187 AT ANLVM
Materials and Plant Systems	Rich Slade	B159	2-7329	B32848 AT ANLVM
Planning, Finance, and Administration	Mike Boxberger	A245	2-5638	B34540 AT ANLVM
Scientific Applications and Research	Charles Mueller	A231	2-7153	B11284 AT ANLVM

The Division operates a Cray X-MP/18 with UNICOS 6.0.12, a Sun 3/280 gateway, a central VAX cluster (a DEC VAX 8700 and a DEC VAX 6410) with VMS 5.4, an IBM 3084QX9, and three Hewlett-Packard 3000 minicomputers. Software on the IBM computers includes VM/XA SP 2.1 with CMS Release 5.6, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E) Release 1.3.0, and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 708-972-5415.

The *Argonne Computing Newsletter* is published monthly by the Computing and Telecommunications Division, Argonne National Laboratory, Argonne, Illinois 60439; edited, prepared, and formatted by April Heiberger with CMS, Waterloo Script, and the Linotype L300P typesetter. This *Newsletter* was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

## COMPUTING COMMENTS

### 252 WILL BE NEW TELEPHONE PREFIX FOR ARGONNE EAST

On Monday, November 18, 1991, Illinois Bell will change the telephone prefix for all Argonne and DOE telephones from 972 to 252. Nearly all of the 7,000 telephone numbers available from Illinois Bell with the 972 prefix are in use. Rather than add numbers with a new prefix and have two prefixes, Argonne will use one prefix (252) with 10,000 numbers. Between November 18, 1991, and March 1, 1992, Illinois Bell will provide a "Transition Period" in which all calls will go through, even though the old prefix is dialed. *Internal numbers will not change.*

Although Telephone Services will publicize the new prefix within Argonne, DOE, and other laboratories, Telephone Services encourages each employee to notify their callers and to change their directories, membership listings, stationery, business forms, business cards, etc. If you have questions or concerns, call Chuck Zimmerman at extension 2-3185.

### INFORMATION AND PUBLISHING DIVISION FORMED

Effective August 5, 1991, the Media Services Department (MED), formerly Graphic Arts; the Technical Information Services Department (TIS); and the Technical Communication Services Department (TCS), formerly the Energy, Environmental and Biological Research (EEBR) Publishing Support Services Group, have become the new Information and Publishing Division (IPD). This division provides technical writing and editing, text processing, media and graphic arts, library, information management, and other publishing services on a Laboratory-wide basis.

This reorganization enhances the productivity and efficiency with which a broad range of closely related information and publication services are delivered to the Laboratory's staff. Kathryn Macal, who directed the EEBR Publishing Support Services Group, is the director of the new division. She reports to the Associate Laboratory Director for Energy, Environmental and Biological Research.

### MEDIA SERVICES (FORMERLY GRAPHIC ARTS) CHANGES NAMES OF NETWORK PRINTERS

The Laboratory has reorganized and renamed the Graphic Arts Department. Graphic Arts is now the Media Services Department (MED), one of three departments in the Information and Publishing Division (IPD) of Energy, Environmental and Biological Research (EEBR). To reflect its new organizational name, Media Services has changed the names of its network printers. Apple Macintosh users should have already noticed that the public AlisaTalk zone reflects the new network PostScript printer names. New AlisaPrint queue names have also been established. During a few month transition period, the old queue names will be available.

VAX users on the Laboratory-wide DECnet can send PostScript output to Media Services printers at network address ANLCV1::queuename. CMS and MVS users can send PostScript output to network address ANLCV1.queuename, where "queuename" is one of the queues listed in Table 1. Unix users should read "Printing from Unix Systems to VAX PostScript Printer Queues" in the January 1991 *Newsletter*.

Table 1: VMS Print Queues

Queue	Service Description
MELINO	Linotype PostScript Imagesetter
MEL1X17	QMS 11-by-17 inch PostScript printer
MECOLRSP	QMS color PostScript printer (standard paper)
MECOLRLP	QMS color PostScript printer (large paper)
MECOLRST	QMS color PostScript printer (standard transparency)
MECOLRLT	QMS color PostScript printer (large transparency)

For more information, call Lee Wagar at extension 2-5603.

### COMPUTING WORKSHOP SCHEDULED FOR OCTOBER 1991

During October 1991, CTD will offer one workshop. The schedule is appended to this *Newsletter*. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the workshop and notify attendees of any schedule changes. CTD will reschedule or



cancel any workshop with fewer than six registrants *one week* prior to the scheduled date of the workshop.

*Cray X-MP Fortran Vectorization Workshop* (two 4-hour sessions) is for users who want to optimize their Fortran programs to take full advantage of the Cray X-MP/18 high-performance computer. We will briefly cover Cray architecture, optimization and vectorization techniques, and the use of performance analysis tools. The remainder of the time will provide the workshop participants an opportunity to try these tools out on their own programs. Participants must have a Cray account and a program that has run on the Cray.

## CMS NEWS

### **KERMIT VERSION 4.2.2 BECOMES PRODUCTION VERSION IN CMS**

On Monday, October 21, 1991, CMS Kermit Version 4.2.2 (the latest version available from Columbia University) will become the production version. This new bi-modal version of Kermit that runs under VM/XA SP 2.1 in either 370 or XA mode is a major revision to Version 3.1, which has been the production version since 1988. Many enhancements in Version 4.2.2 provide easier use and increased compatibility with the Virtual Machine/Extended Architecture (VM/XA) operating system. The new features of Kermit 4.2.2 include:

- Automatic tuning of packet length when sending long packets that allows maximum speed based on line conditions.
- A more flexible online help facility.
- Improved transaction logging of file transfers.
- New send syntax that allows multiple files independent of wildcard notation.
- Ability to upload a file to any minidisk, not just your A-minidisk.
- Ability to send partial files by line numbers.

- A "CC" option that specifies that the file has carriage control in column 1 and that it should be converted to ASCII control characters.
- A new Kermit-370 capability that now attempts to keep the format attributes specified by the sending Kermit file, when receiving a file.
- Optional translation tables for counteracting the system conversion of terminal input/output (I/O).
- SET 8-BIT-QUOTE that allows 8-bit data, where possible, via SET PARITY.
- New SET SERVER-TIMEOUT subcommand.

To test Kermit 4.2.2 before October 21, 1991, enter:

**KERMTST**

This command links you to the KERMIT 2 minidisk and invokes Kermit. The new help file and documentation file are also on this minidisk.

Please report any difficulties with Kermit 4.2.2 to the User Services consultants at extension 2-5405.

### **SAS/FSP DROPPED IN CMS**

The Statistical Analysis System/Full Screen Product (SAS/FSP) is no longer available on the Virtual Machine/Extended Architecture (VM/XA) operating system. This tool permitted users to edit and examine individual observations within SAS datasets. Because the Argonne central computing user community did not use SAS/FSP, CTD has discontinued its license. The basic SAS and SAS/Graph program products continue to be available.

## CRAY NEWS

### **CRAY I/O CHARGING METHOD REVISED**

CTD is revising the method used to count input/output (I/O) requests on the Cray X-MP/18. This new method is more consistent with the method used on the central IBM and VAX computers. Starting on Tuesday, October 1, 1991, CTD will use the log-

ical I/O count rather than the bytes transferred divided by 4,096 for the I/O component of the central processing charging algorithm. You can obtain the logical I/O count for a Cray process or session from the **ja** command. Cray users should notice a decrease in I/O charges with this new method.

The logical I/O count is a fairer representation of the amount of resources consumed for I/O activities than is the number of bytes transferred. The logical I/O count represents the number of times a process requests I/O from the UNICOS kernel. The request can be for a few bytes to many blocks of data. Based on a recent study, the overall I/O counts will be 1/3 of the previous counts, with large production codes being charged only about 1/7 of the previous counts. Some codes, notably the Fortran compiler, will have increased I/O counts. This change, which CTD initiated as the result of a user's suggestion, will reward those who tune their codes for I/O.

To decrease the number of logical I/O requests, use a large number of I/O buffers. The Fortran library default is now eight 512-word buffers. (This number will be increased to forty-eight 512-word buffers in UNICOS 6.1.) To change the number of Fortran buffers for a file, enter (in Bourne shell):

```
FILENV=assignfile
export FILENV
assign -bnnn u:unit
```

Enter (in C shell):

```
setenv FILENV assignfile
assign -bnnn u:unit
```

where "assignfile" is the name of a file used by UNICOS to store subsequent assign information, "nnn" is the number of 512-word buffers, and "unit" is the Fortran unit number.

A recent test case that wrote a 32 megaword unformatted file showed that 8,254 logical I/O requests were necessary when eight 512-word buffers were used. Increasing the number of buffers to 128 reduced the logical I/O requests to 556. Corresponding decreases were also noted for logical I/O requests when reading and writing formatted files.

Note, increasing the number of I/O buffers will increase your runtime memory requirements. For example, when the Fortran default is changed from 8

to 48 buffers, your programs will require a runtime memory increase of 20K words for each Fortran file that is open.

### **SCHEDULE FOR UNICOS 6.1**

On Monday, October 14, 1991, at 8:00 a.m., CTD will install the UNICOS 6.1.4 operating system on the Cray X-MP/18. If no major difficulties occur on October 14, UNICOS 6.1 will remain the production operating system. Otherwise, CTD will return to UNICOS 6.0.12 on Tuesday, October 15, 1991.

UNICOS 6.1 is a minor release that provides compatibility with UNICOS 6.0, with a major emphasis on fixing many customer Software Problem Reports to improve the system's reliability. Upgrading the operating system to UNICOS 6.1 is a prerequisite to installing UNICOS 7.0, which will be available from Cray Research, Inc. in the first quarter of 1992.

### **CFT77 FORTRAN COMPILER UPGRADED TO RELEASE 5.0**

On Monday, October 14, 1991, at 8:00 a.m., CTD will install Release 5.0 of the cft77 Fortran compiler on the Cray X-MP/18. This compiler has been available for testing in the /new directory for several months. CTD encourages users to compile their codes and report any difficulties prior to the October 14, 1991, cutover date.

## **MANAGEMENT INFORMATION SYSTEMS**

### **INTEGRATED FINANCIAL SYSTEM UPDATE**

Cost Accounting will be closing the financial system books for FY1991 during the first two weeks of October 1991. The Integrated Financial System (IFS) Project Team will submit the user reports on either October 8 or 9, 1991. They should complete printing by October 11, 1991. During the period of the year-end close (September 27 through October 11, 1991), we will disable the ad hoc report submission function of the Information Organizer (IO) system (screen RPSB) to prevent financial users from



getting incomplete year-end reports. At the request of the Office of the Chief Financial Officer, the IFS Project Team will not be permitted to submit user reports until Cost Accounting completes the year-end close.

Progress on all phases of the IFS project will be reported at the Financial Applications Committee to Effect Telesis (FACET) meetings held on the second Wednesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

## PERSONAL COMPUTING

### HOW TO USE VAX CLUSTER FILES FROM YOUR PERSONAL COMPUTER

Users with IBM Personal Computers (PCs) and compatibles that run the Pathworks (a.k.a. PCSA) product from Digital Equipment Corporation can use files in the Argonne central VAX cluster to extend their personal computer disk storage capacity by hundreds of megabytes, to make file exchange easier with other personal computer users, and to exchange files with VAX cluster users. This article describes how you can use the VAX file system from your PC. An intangible benefit of using remote file systems on your PC is that the files are backed up daily and may be recovered easily. Future articles will describe how to access other Pathworks services in the VAX cluster server, including electronic mail and X Window clients. A prior article described how to use Pathworks print services (see "How to Use VAX Cluster Printers from Personal Computers" in the September 1991 *Newsletter*).

To access files in the Argonne central VAX cluster, you need a VAX cluster account. However, you will not need to login to the cluster to use your files. You connect to a file service designated by a root directory in the VAX tree-structured file system with the USE command:

```
USE ?: \\ANLCV1\file-service$username *
```

where "file-service" is the name of a root directory or VAX cluster account name and "username" is your VAX cluster account name. We recommend that you use the asterisk rather than the value of your VAX cluster password. When you use the asterisk,

the system will prompt you for your password and will not display your response on your monitor screen. Note that the field containing "?:" represents the name of the personal computer disk (for example, C: or D:) that you use to access the file service. The question mark tells the Pathworks software to assign the first available letter. When the connection is completed, the specific letter is displayed on your monitor screen. If you prefer, you can also substitute a specific letter instead of the question mark. To display your file service connections, enter the USE command without any other parameters or options. This command also displays the print services and disk services to which you are connected.

You can place the USE command in a .BAT file. If you do, you need to substitute two percent symbols (%) in place of the single one above. The following example is a USE command that establishes a connection from your personal computer to the default or login directory of the VAX cluster account for user B34567 for inclusion in your AUTOEXEC.BAT file:

```
USE ?: \\ANLCV1\B34567%B12345 *
```

This example connects the login default file system of user B34567 by using the account of B12345.

The following USE commands show how to connect to the two file-service trees currently created for each account in the Argonne central VAX cluster:

```
USE ?: \\ANLCV1\B12345%B12345 *
USE ?: \\ANLCV1\USERSCRATCH:[B12345]%B12345 *
```

The first USE command connects to the root directory of the B12345 account where the permanent files are kept; the second USE command connects to the root directory of the scratch file system for the B12345 account containing temporary files that are retained for only seven days after their date of last access.

To access the files in the file service from your personal computer, include the logical disk drive letter (for example, "E:") in personal computer commands or from personal computer applications that normally read from and write to local disks. When using the VAX files, remember that the personal computer can access any file whose name conforms to the convention of the DOS system, which limits

file names to eight characters and file types to three. If you have VAX files whose names or types exceed these limits, then you will not be able to see them from the PC. You view the VAX file system as a PC disk. All PC file and directory commands (CD, DEL, REN, MKDIR, etc.) act on the file system in the same way that they do to a PC's disk and files. You do not need to learn any new commands to manipulate the remote files.

Access to the VAX cluster file systems is subject to the same security mechanisms used for VAX cluster accounts. The access protection includes the standard four-level protection mechanisms (read, write, execute, and delete) available for system, owner, group, and world user categories, as well as the access control list (ACL) mechanism. You can establish a connection to any directory in the VAX cluster file system as the root of a file-service tree, but the username and password that you supply in the USE command will govern your access to VAX cluster files.

To exchange files with other PC users or VAX users via the VAX file service, you need to write files into your VAX-based file service. You then inform either PC users how to connect to your file service with their VAX account or tell the VAX user where the files are. You also need to ensure that the proper access rights are associated with the files that are to be read by others; for example, write files into your own VAX file-service and give them appropriate read access either for the world user category (all VAX accounts) or the group user category (all VAX accounts with the same cost center) or by using an ACL.

The charge for file services is \$10 per month, which is allocated by VAX account and not by connection. You may make as many connections as you need to different VAX directory systems through your VAX cluster account for this fee. The charge is applied to the VAX cluster account used to establish the connection and not against the owner of the files, if they are different. Personal computer users who use the file service need their own VAX cluster account. File space in the VAX cluster is charged back to the owner of the VAX account to which the files are allocated. The rate for disk space is \$0.15 per megabyte day for existing files only.

For more information on command options for the Pathworks USE command, enter (at the DOS prompt):

HELP USE

## NEW KERMIT GOLDKEY.COM PROGRAM AVAILABLE

CTD has modified the GOLDKEY.COM program for VAX users who use their IBM Personal Computers to emulate VT-terminals. This program enables Kermit to use the numlock key on the IBM Personal Computer enhanced keyboard as the VT-terminal gold key. VAX users familiar with the VT-terminal keypad can then use the IBM Personal Computer numeric keypad in the same convenient manner. This program is useful because the numlock key on the IBM Personal Computer is in the same position as the gold key on a VT-terminal.

The changes to GOLDKEY.COM Version 2.0 include:

- Speeding up the runtime during execution.
- Allocating less memory during execution.
- Removing the program from memory.
- Ensuring with an error check that the program is not loaded into memory twice.

Kermit alone cannot redefine the numlock key. By using GOLDKEY.COM first, you can redefine the numlock key in your Kermit keypad initialization file; or you can use DECPAD.KEY, the one provided with Kermit. To use this tool, follow these instructions:

1. At the DOS prompt, enter:

```
A:\GOLDKEY
```

2. To start Kermit, enter:

```
A:\KERMIT
```

3. At the Kermit prompt, enter:

```
Kermit-MS>TAKE DECPAD.KEY
```

After you follow the above steps, you can connect to your VAX session. After you leave your VAX session, to remove the GOLDKEY program from memory, enter (at the DOS prompt):

```
A:\GOLDKEY -D
```

Kermit DECPAD.KEY and GOLDKEY.COM Version 2.0 are on Kermit diskettes, available at the



Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies).

## TELECOMMUNICATIONS NEWS

### **NEW TELEPHONE PREFIX FOR DOE-HQ GERMANTOWN**

On November 9, 1991, the Department of Energy Headquarters (DOE-HQ) Germantown commercial telephone number prefix will change from 353 to 903. At this time, it is not known if this change also applies to the Federal Telecommunications System FTS-2000 government, nationwide, intercity telephone network. Look for DOE-HQ publicity on this change soon.

### **NETWORK TROUBLE? CALL THE NETWORK OPERATIONS CENTER**

CTD is reorganizing its support of Laboratory computer networks: connections to external networks, Laboratory-wide LANmark and Fiber Distributed Data Interface (FDDI) networks, central computing facility networks, and eventually divisional local area networks (LANs) on a contract basis. As a first step, CTD is forming a Network Operations Center (NOC) to ensure the reliability of ANL Laboratory-wide and local area networks and to provide early notification and timely responses for network failures.

When you have trouble moving information through the Laboratory-wide network or communicating or computing across networks external to the Laboratory, call NOC at (708) 972-5421 or send electronic mail to [noc@anl.gov](mailto:noc@anl.gov). With a few exceptions, network operators are available around-the-clock to accept your call or electronic mail. When an operator cannot handle your call immediately, leave a voice mail message giving your name and telephone number plus a brief description of the trouble. The network operators will resolve the trouble or notify the appropriate specialist onsite or off-site.

Network operators will continually monitor the status of the networks. However, some troubles will need to be resolved by personnel only available dur-

ing business hours (8:30 a.m. to 5:00 p.m., Monday through Friday). In these cases, the NOC network operators will advise you of what to expect, so you can plan accordingly. The network operators will also record network status information on the Current System Status Recorded Message at (708) 972-5466.

For assistance in proper usage of network commands (for example, electronic mail and file transfer), continue to call the User Services consultants at extension 2-5405.

### **VOICE MAIL USAGE SURPASSES EXPECTATIONS**

Since the introduction of the Voice Mail System at the Laboratory in March 1991, the number of voice mail mailboxes has increased to over 1,000. Because this figure exceeds our minimum projection, CTD has requested a reduction in the monthly mailbox rate for FY1992 from the Chief Financial Officer.

Many users have found that voice mail provides an excellent method of information exchange by eliminating the need to call people repeatedly when they are busy or not available. Telephone Services has begun to consult with ANL groups about providing more specialized integrated applications (such as "caller menu" and "information" type voice processing).

The most frequent complaint is from callers who find themselves in an "endless mailbox loop." We have advised telephone coordinators and key secretarial personnel to include the "escape to a real person" feature when requesting voice mail. Telephone Services will contact users when complaints are received and will recommend a change in mailbox programming.

For more information, contact a Telephone Services customer services representative at extension 2-2727 or Chuck Zimmerman, the System Administrator, at extension 2-3185.

**TYMNET DISCONTINUED SEPTEMBER 30, 1991**

On Monday, September 30, 1991, ANL discontinued its contract with Tymnet that allowed dial-up terminal access to Argonne computers from domestic and international centers. Argonne staff and collaborators have used Tymnet since the early 1980s to access computers at the Laboratory.

The trend toward networked computing across the country has resulted in increased accessibility to ANL computers from around the country and in a sharp decline in the usage of Tymnet long-distance service. Had the Tymnet contract been renewed, the hourly Tymnet rate charged to the remaining small base of ANL Tymnet users would be greater than the prevailing long-distance rates. It is now more cost-effective to dial directly via available long-distance service. CTD has notified the registered Tymnet users of Tymnet's discontinuation.

Also, CTD Telephone Services has advised the telephone coordinators of the options for handling long-distance call charges. Previous users of Tymnet should contact their telephone coordinators to learn how their division will handle reimbursement for long-distance calls to ANL computers.

**NEW ADDITIONS TO BITNET UNIVERSITY NETWORK**

The BITnet University Network enhances collaborative efforts between Argonne scientists and scientists at universities and other organizations. You can use electronic mail through BITnet to share programs, data, and other information with other BITnet users.

Currently, the BITnet network comprises over 3,480 computers at over 1,240 sites. Since the last *Newsletter* article in August 1991, the following universities and organizations have joined BITnet:

CEMAGREF--Lyon, France  
Federal University of Ponta Grossa--Brazil  
Federal University of Rio Grande do Norte--Brazil  
Federal University of Vicosa--Brazil  
Josef Stefan Atomic Energy Institute--Ljubljana, Yugoslavia  
Karadeniz Technical University--Trabzun, Turkey  
Marmara University--Istanbul  
Metropolitan State College of Denver  
Ministry of Education--Warsaw

National-Louis University  
Small and Medium Industrial Development  
Organization--Ankara, Turkey  
State University of New York Jamestown College  
Technical Institute of Patra--Greece  
Technical University of Dresden  
University of Leipzig  
University of Mining and Minerals--Krakow  
Western New England College

For a complete list of organizations in the BITnet network and their nodenames, enter (in CMS, the CTD VAX cluster, or MVS Wylbur):

**HELP BITNET NODES****UNIX NEWS****IBM RISC SYSTEM/6000 MODEL 550 USER EXPERIENCES**

As reported in the August 1991 *Newsletter*, IBM has provided CTD with a RISC System/6000 Model 550 for Argonne to evaluate. We installed this machine in mid-August 1991, and it has already received excellent reviews from several of the Laboratory scientists. Currently, there are over 15 users taking advantage of the availability of the machine, and it will continue to be available until October 15, 1991.

Several of the users who obtained accounts on the Model 550 for benchmarking their particular applications have found the system to provide excellent performance for their code. Both the software and the hardware have been very stable, and the effort to convert codes to execute on the Model 550 under AIX (IBM's version of Unix) has been minimal.

The performance has also been very impressive, with some codes executing better on the Model 550 than on the Cray. Dr. Robert Wiringa (Physics) used his Alpha2 application code as his benchmark to compare performance results on several other architectures. Alpha2 is a quantum Monte Carlo calculation of the binding energy and density distribution of a four-body nucleus (the alpha particle) with realistic two-body and three-body interactions and variational wave functions.



Figure 1 illustrates the results of benchmarking the Alpha2 code on several architectures, including the Model 550 and the Cray X-MP. The x-axis is millions of floating-point operations per second (MFLOPS). As Figure 1 illustrates, the Model 550 compares favorably with the Cray architectures for this particular code.

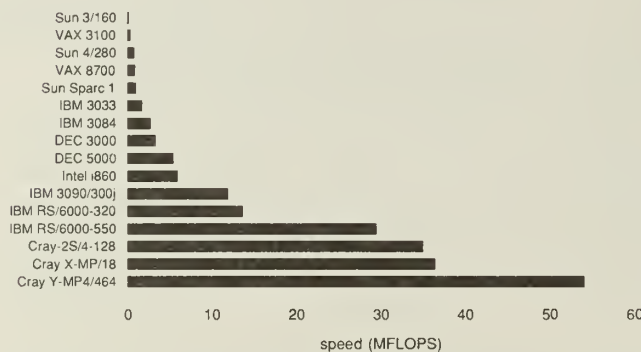


Figure 1: Alpha2 Benchmark

Robert Schmitt (Materials and Components Technology) has moved COMMIX-1c code (24,000 lines of Fortran) to the Model 550. COMMIX-1c is a three-dimensional transient single-phase computer program for thermal-hydraulic analysis of single-component and multi-component engineering systems. The only difficulties encountered were memory allocation calls that are made in COMMIX-1c and the need for a time-of-day routine. These difficulties were solved, and two different benchmark runs were made. The execution times for the two benchmark runs were less on the Model 550 than on the Cray X-MP by factors of 1.9 and 1.27.

Dr. Jasmina Vujic (Reactor Analysis) has done an extensive study with the GTRAN2 program. GTRAN2 is a reactor lattice physics code primarily used for analysis and design of modern nuclear reactor assemblies. The execution times on the Model 550 for five of the six test cases run were less than IBM 3090 execution times.

Codes that vectorize well (such as three benchmark programs that Larry Rudsinski has tested) do not execute as well on the Model 550 as on the Cray X-MP. The vector performance is best illustrated by the MFLOPS of 79, 142, and 183 obtained on the

Cray X-MP (see Figure 2). On these three benchmarks, the Cray X-MP outperforms the Model 550 by factors of 7.1, 3.8, and 8.3, respectively.

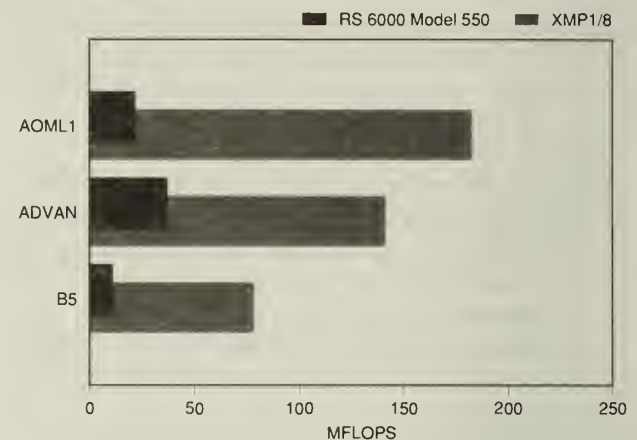


Figure 2: Vector Performance

The early results illustrate scientific applications that vectorize well are more suited for vector architectures (such as the Cray X-MP), whereas inherently scalar applications appear well suited for such architectures as the RS6000 Model 550.

Users who are interested in using the IBM 6000 Model 550 before October 15, 1991, should contact Dave Leibfritz at extension 2-6596 to get an account on this machine.

## VAX/VMS NEWS

### USERS GAIN ACCESS TO CRAY /N2 FILE SYSTEMS FROM CENTRAL VAX CLUSTER

CTD has installed MultiNet's Network File System (NFS) Client software on the Argonne central VAX cluster. Users can now access their Cray /n2 file systems from both ANLCV1 and ANLCV2 cluster nodes. The NFS Client makes the Cray /n2 file system appear to be a VAX VMS file system to users on the central VAX cluster. It allows you to access your UNICOS scripts (including "nqs" batch job scripts), Fortran source files, and application files (for example, stdin/stdout/stderr) without the need to transfer files between the VAX cluster and the Cray.

```
$ DIR NFS$XMP N2: [username]
```

```
$ rsh xmp qsub "-eo -o /n2/username/myout  
/n2/username/myscript"
```

```
$ MORE NFS$XMP N2:[username]MYOUT
```

VMS and UNICOS use different file naming standards. VMS filenames may only contain uppercase characters, allows only one "." (period) character, and includes a version number. If you create lowercase /n2 filenames on the Cray, the NFS Client converts the filenames to uppercase on the VAX (for example, "myfile" translates to "MYFILE.;1"). To avoid the complex filename translation described in the following paragraph, use lowercase filenames for your /n2 files.

VMS and UNICOS file formats are different. To handle the Record Management System (RMS) file formats for which there is no UNICOS equivalent (that is, non-Stream\_LF files), MultiNet's NFS Client creates a second companion file to hold file attributes. Companion files are visible on the Cray with names of the form ".\$fdl\$myfile," where "myfile" is the filename. The NFS Client hides companion files from you on the VAX. DO NOT DELETE THESE FILES FROM YOUR /n2 FILE SYSTEM.

To learn more about MultiNet's NFS Client, you can order the *MultiNet NFS Client System Administrators' Guide* from the User Services consultants (extension 2-5405).

Apple's MacX application is an implementation of the X Window System for the Apple Macintosh. This article describes what you must do to access DECwindows applications on the Argonne central VAX cluster from an Apple Macintosh running MacX.

MacX allows Apple Macintosh computers connected to AppleTalk or Ethernet to operate as an X Window server. X Window client applications running on the central VAX cluster can create application windows on Apple Macintoshes with MacX installed. For a discussion of several DECwindows applications available on the central VAX cluster, see "Accessing DECwindows Desktop Utilities" in this *Newsletter*.



The Laboratory has acquired a site license for MacX (see "Sitewide License for MacX" in the August 1991 *Newsletter*). To obtain a copy of MacX, contact David Lifka at extension 2-3251 or at electronic mail address B36857@anlcv1.ctd.anl.gov.

After installing MacX (and MacTCP), you need to configure these two packages. Your Apple Macintosh will need an Internet name and IP address. To get them, contact your divisional network manager.

MacX provides its own window manager as an alternative to the DECwindows window manager. A window manager lets you move, resize, and stack X Window client windows. The MacX window manager creates windows (called rootless windows) that look like typical Apple Macintosh windows. If you have a color monitor, you will want to create Color Rootless windows.

When you first start up MacX, you should create a **Settings Document**. The **Settings Document** stores remote node definitions that are used to connect to remote Transmission Control Protocol/Internet Protocol (TCP/IP) nodes. To define settings for connecting to the central VAX cluster, launch MacX and select **New Command** under the **Remote** menu on the menu bar. The window **New Remote Command** will appear.

Complete the following items in the window:

1. Remote Command. Enter:

```
@SYS_ANLUTIL:START_DECW_SM
```

This item will cause the DECwindows session manager to start on the VAX. (The session manager is discussed in more detail later.)

2. Command Name. These settings will be stored under this name at the bottom of the **Remote** menu item. Enter a text string for the name (for example, anlcv1).
3. Display. If you have a color monitor, select (2) **Color Rootless**. Otherwise, select (0) **Black-and-White Rootless**.
4. Output. Select **Save**.

5. Username. Enter your central VAX cluster username.
6. Password. We recommend that you leave this field blank. If it is blank and you have selected the prompting option in **Misc. Preferences...** under the **Edit** menu, you will be prompted for your VAX account password when you attempt to connect to the central VAX cluster.

Use the mouse to click the **Host** button. A **Connection Settings** window will appear. Complete the following items in this window:

1. Method. Select **MacTCP Tool**.
2. Host Name or Address. Enter (as the remote host's Internet name):

```
anlcv1.ctd.anl.gov
```

Click the **OK** button. You will be returned to the **New Remote Command** window. Click on the **Set** button to save the **New Remote Command** (it will appear on the **Remote** menu). To prevent unauthorized nodes from opening windows on your Apple Macintosh, select **Access Control** in the **Remote** menu. Your MacX **Settings Document** is now complete. Select **Save** in the **File** menu to save your MacX **Settings Document**.

Before connecting to the VAX, add the following command to your **LOGIN.COM**:

```
$ SET DISPLAY/CREATE/TRANSPORT=TCPIP -  
/NODE=your_Internet_name/SERVER=0/SCREEN=2
```

Copy the command file **DECW\_SM.COM\_TEMPLATE** to your login directory with the following command:

```
$ COPY SYS_PUBLIC:DECW_SM.COM_TEMPLATE -  
SYS$LOGIN:DECW_SM.COM
```

Edit this command file, replacing "your\_Internet\_name" with the Internet name that has been assigned to your Apple Macintosh.

You are now ready to connect to the central VAX cluster. Launch MacX, and select the MacX command you created in the **Remote** menu. Enter your VAX password when prompted. After a few seconds, a dialogue menu will appear on your Apple

Macintosh asking for permission to allow an X11 client connection to your Apple Macintosh. Click OK. In a few seconds, the DECwindows session manager will open a window on your Apple Macintosh.

The session manager controls the look and feel of your DECwindows session. With the session manager, you can customize application, keyboard, and window settings. You can define a set of client applications that you want started each time you start the session manager. You have the choice of many DECwindows applications (Bookreader, Calendar, Cardfile, DECterm, FileView, Mail, and other desktop utilities). See "Accessing DECwindows Desktop Utilities" and "X Window Users Gain Access to DEC Documentation Via DECwindows Bookreader" in this *Newsletter*.

There are other X Windows client applications on the central VAX cluster (for example, SAS, ANSYS, Tellagraf, Tellagraf Menus, Xmovie, Disspla, Symbolic Debugger, Language Sensitive Editor [LSE], Source Code Analyzer [SCA], and Code Management System [CMS]).

By using the DECwindows desktop utility, Bookreader, you can display VMS documentation (including the *DECwindows User's Guide*) on your Apple Macintosh (all VMS and MultiNet documentation is available online). You may also want to order the *MacX User's Guide*. If you need additional assistance, contact David Lifka at extension 2-3251.

### ACCESSING DECWINDOWS DESKTOP UTILITIES

The Argonne central VAX cluster has many DECwindows client applications (for example, SAS, ANSYS, Tellagraf, Tellagraf Menus, Xmovie, Disspla, Symbolic Debugger, Language Sensitive Editor [LSE], Source Code Analyzer [SCA], and Code Management System [CMS]). In addition to these applications, Digital Equipment Corporation (DEC) distributes several DECwindows desktop utilities with VMS. DECwindows is an X Window interface to the VMS operating system. Users on X Window servers have access to these personal productivity tools on the central VAX cluster.

You can launch all the desktop applications from the DECwindows session manager or from File-

View, one of the desktop utilities. Brief descriptions of the DECwindows desktop utilities follow:

- Bookreader: an online document display utility.
- Calculator: a desktop calculator.
- Calendar: a combination calendar and personal appointment calendar.
- Cardfile: an electronic box of index cards. Cardfile is a personal productivity tool that is useful for keeping action lists, telephone numbers, etc.
- CDA Viewer: a viewer that lets you view Compound Document Architecture (CDA) documents on your workstation screen. CDA documents can be displayed on both DECwindows servers and character cell terminals.
- Clock: a clock that displays time and date. It also provides a settable alarm.
- DECterm: a VT300-series terminal emulator.
- Extensible VAX Editor (EVE): a powerful screen-oriented text editor.
- FileView: a display-oriented file manager with pull-down file operation menus (for example, copy, compile, compare, delete, print, purge, read, rename, and run). It can also be used to launch other DECwindows desktop tools.
- Mail: a point and click mail interface that can send/receive VMS mail. DECwindows mail has a CDA interface that lets you send/receive CDA documents.
- Notepad Editor: an editor that uses the mouse to navigate through a file and to cut, paste, replace, search text, etc. (the DECwindows mail editor).
- DECpaint: a graphics program for simple sketching, drawing, etc. (like MacPaint on the Apple Macintosh). Its image files are stored in a CDA format.

Bookreader provides online documentation for all these utilities. (See "X Window Users Gain Access to DEC Documentation Via DECwindows Bookreader" in this *Newsletter*.)



### **X WINDOW USERS GAIN ACCESS TO DEC DOCUMENTATION VIA DECWINDOWS BOOKREADER**

Bookreader, a VMS DECwindows (X Window) application, is an online information display tool that displays final-form files that are optimized for fast online display and rapid random access. Users can view Bookreader documents on the Argonne central VAX cluster from X Window servers.

Bookreader uses a book metaphor for ease of use. Its topics are divided into three hierarchies: libraries, shelves, and books. Libraries contain shelves and books; shelves contain shelves and books.

The central VAX cluster contains a large repository of Digital Equipment Corporation (DEC) documentation in Bookreader format. This repository (on one CDROM mounted to both ANLCV1 and ANLCV2) includes two Bookreader tutorials ("Using Bookreader" and "Managing a Bookreader Library"), the entire VMS documentation set, and other DEC software and hardware documentation.

The MultiNet Transmission Control Protocol/Internet Protocol (TCP/IP) vendor, TGV, Incorporated, now distributes its documentation in Bookreader format. CTD has installed MultiNet's 3.0 Bookreader documentation on the central VAX cluster.

To open a shelf or book, point your mouse at a shelf or book icon and press the appropriate mouse button. Bookreader displays two windows when accessing a book—one for control and one for content display. The control window can display the book's Table of Contents or its Index. Scroll bars position Table of Contents or Index information in the control window.

Clicking the mouse on a control window entry opens a content window that displays formatted text for that entry. Content displays can include "hot spots" that, when selected, open a third window to display tables, charts, graphics, etc.

Multi-platform (VAXstation, PC, Mac, OS/2, and Sun) electronic publishing applications are available that allow authors and editors to create their own Bookreader documents. To learn more about creating Bookreader documents, contact either Rich Raffanetti (extension 2-8497) or Barry Miller (extension 2-6808).

### **INTERACTIVE ANSYS ACCESS LIMITED**

Recently, CTD has extended the availability of the ANSYS finite-element engineering analysis system to include both the Argonne central VAX processors, the VAX 6410 (ANLCV1) and the VAX 8700 (ANLCV2). Formerly, ANSYS was not available on the VAX 6410. We have also implemented an ANSYS version that can solve finite-element problems with a maximum wavefront of 3,000 in response to a user's request. We have also limited interactive ANSYS usage during prime hours to the VAX 6410 only. As a result, there is a better distribution of the interactive workload, and users of both machines benefit.

On Monday, September 16, 1991, we implemented changes to the **SETUP** command that limit access to ANSYS from the VAX 8700. During prime hours, 7:00 a.m. through 7:00 p.m., Monday through Friday, the **SETUP** command will not give access to ANSYS from interactive sessions on the VAX 8700 computer. ANSYS is still available on both machines in batch mode at all hours and in interactive mode during non-prime hours (evenings and weekends).

CTD has notified ANSYS users of the availability of ANSYS on the VAX 6410 and of the new policy via both login messages and messages displayed to their terminals when they executed the **SETUP** command to access ANSYS. The **SETUP** command informs users attempting to access the ANSYS system on the VAX 8700 during prime hours that they should use the VAX 6410 instead. If the interactive workload balance between the processors changes or if it is otherwise determined that the new policy is not serving the needs of users, CTD will consider further changes.

### **BITS & BYTES**

#### **RECENTLY UPDATED AND PUBLISHED DOCUMENTS**

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new documents are available at the Document Distribution

Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy):

### Computing and Telecommunications Documents

A September 1991 addendum to *Retrieving and Analyzing Computer Usage Accounting Data at ANL* (ANL/TM 402) describes revised codes and other revised data since it was published in January 1989. The addendum highlights include (1) new system identification codes (SIDs), (2) fiscal year month-end accounting dates, and (3) an updated list of Komand billing codes.

### Other Vendor Documents

*Viruscan/Clean-Up for IBM PC V80* is a 5 1/4" diskette with the current release of Viruscan and Clean-up, a disinfectant program for the IBM Personal Computer. These programs can detect and correct known viruses (such as Jerusalem B, Fish, Fish6, and Yankee Doodle). CTD requests that you not make copies of these programs for others to use, because our license is limited to 100 copies of each of these programs. Copies of this diskette are available at the Document Distribution Counter. CTD is keeping a master list of all persons to whom these programs have been distributed. This V80 diskette supersedes the V77 diskette.

## USERS GROUP HIGHLIGHTS

### MINUTES OF COMPUTER USERS GROUP MEETING

At the time this *Newsletter* was ready to go to the printer, the Computer Users Group minutes of the September 3, 1991, meeting were not available.

### MINUTES OF MACINTOSH USERS GROUP MEETING HELD SEPTEMBER 11, 1991

Bob Kampwirth (Materials Science) opened the meeting at 11:03 a.m.

Mark Towler (Director of Sales, DeltaPoint, Inc., Monterey, California, 408/648-4000) demonstrated a beta test version of DeltaGraph Professional. This charting program for business

and scientific purposes is an upgrade of DeltaGraph 1.5. DeltaGraph Professional, which is to be released in October 1991, will be available as an upgrade for \$69.95. The upgrade will be free if DeltaGraph 1.5 was purchased after May 15, 1991. The suggested retail price is \$395. If anyone still has DeltaGraph 1.0, a free upgrade to DeltaGraph 1.5 is available. New features include (1) ease of revising data without losing chart formatting, (2) ease of saving custom chart formats, (3) additional curve fitting options, (4) superscripts and subscripts available in all text fields, (5) graphs exported in a variety of formats, (6) System 7 features, (7) warm links with Excel 2.2 and 3.0 (including the use of named ranges in Excel), (8) rotated 3-D graphs, (9) 2-D contour plots from 3-D graphs, and (10) ease of resizing charts.

DeltaGraph 1.5 requires 1.0 megabytes of random-access memory (RAM). Mark expects DeltaGraph Professional to require more memory. He left a copy of the beta test version of DeltaGraph Professional with Bob Kampwirth for people to test. Mark Towler will be back in four to six weeks to answer questions.

For the DeltaGraph Pro presentation, Mark Towler used a Data Display color overhead projector. The display sharpness and contrast and the color were quite good. The operation of the display was very smooth, so that one quickly took it for granted. The cost of the unit, which sits in the place of a viewgraph on a normal overhead projector, is \$4,500 to \$5,000.

The sitewide licenses for System 7.0 and HyperCard 2.1 are still up in the air. David Lifka (Computing and Telecommunications) at extension 2-3251 is working on these licenses. As details become available, Lee Wagar (Media Services) will send out the information via QuickMail. Rodney East (Materials Science) will coordinate the distribution of System 7.0 to Apple Macintoshes that are on the ANL computer network. Barry Miller (Computing and Telecommunications) at extension 2-6808 mentioned that MacX (X Window for the Apple Macintosh) is being considered as a good vehicle for displaying online documentation, for example, the Argonne Information Management (AIM) and the Material Safety Data Sheet (MSDS) papers.



Barry Miller also reported that the new University of Chicago price list for Apple Macintosh computers is available via AppleShare as an Excel 2.2 file. If one is on the AppleShare network, one can view and copy this file in the following way. Use "Chooser" under the Apple menu on the Apple Macintosh to select the AppleShare Zone called "Public AlisaTalk." Then select "CTDVAXserver" and "Apple Standard UAMs" and connect as a "Guest." Select "Public Volume," and the AppleTalk file server icon will appear on the Apple Macintosh desktop. Open this icon and then the "U of C Price List" folder. Note that other folders, such as "System 6.0.5" and "Virus Abatement Software," are also available. Inside the "U of C Price List" folder is the "9/1/91 Price List" Excel 2.2 file. One can open and read this file or copy it to one's own disk for future use, editing, and printing. This spreadsheet contains information on special pre-Christmas discounts (\$125 to \$800) for some Apple Macintosh Classic, LC, and IIsi packages. In addition, a limited time institutional discount (\$600 to \$800) is available for two Apple Macintosh IIsi and three Apple Macintosh IIsi configurations.

Bill Schertz (Energy, Environmental and Biological Research) announced that Energy Systems had developed a field work proposal (FWP) in the format that will be needed over the next few months. This form is stored as a Claris FileMaker Pro file. This is the point where the data is entered. Then the data is transferred to a master Microsoft Word file and printed. Bill would like to make these two locked files (along with a Word file giving instructions on how to use them) available to interested ANL people. It was suggested that he put these three files on the "Public Volume" file server of "Public AlisaTalk."

One person reported that printing from QuickMail with an AppleShare volume mounted seemed to cause his Apple Macintosh to crash. Another person reported similar difficulties with two AppleShare volumes mounted at the same time.

The Apple Macintosh Users Group normally meets the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. In October 1991, Apple Computer will give a special presentation. In November 1991, there will probably be a demonstration of FrameMaker (sometimes called the ultimate Apple Macintosh Word processor) and a review of MacX (X Window for the Apple Macintosh). In December 1991, there will be

a demonstration of two spreadsheets for the Apple Macintosh, Claris Resolve and Microsoft Excel 3.0. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee Wagar (Media Arts), Jim Lewellen (Computing and Telecommunications), or Ralph Leonard (Chemical Technology) for further meeting information. Lee Wagar sends out the meeting announcement via QuickMail or E-mail, when possible, and via paper to those who have no electronic mail capabilities. If you have an electronic mail address and are not receiving an electronic meeting announcement, contact Lee Wagar at extension 2-5603 or via QuickMail.

The meeting adjourned at 12:05 p.m.

Ralph Leonard, Macintosh Users Group Secretary

#### **MINUTES OF GRAPHIC ARTS USERS GROUP MEETING HELD JULY 11, 1991**

(Since this meeting took place in July 1991, the Graphic Arts Department has become the Media Services Department of the Information and Publishing Division.)

Chairperson Floyd Bennett (Energy, Environmental, and Biological Research Publishing Support Services) opened the meeting at 12:03 p.m. He noted that most of this meeting would consist of a visit to the Graphic Arts photography unit in Building 222. Floyd also mentioned that election of group officers for 1991-1992 will take place at the next quarterly meeting; nominating and voting procedures were then discussed briefly.

Regarding the use of ANL as a beta test site for the new Xerox DocuTech Production Publisher, Rich Nixon (Graphic Arts) and Joe Paulini (Graphic Arts) said that the networking portion of the DocuTech would not arrive before October or November 1991 and that the cost to ANL for its use would be high.

Joe Paulini discussed ANL's impending new copier contract. Although Procurement is currently reviewing the Request for Proposal (RFP), various unavoidable delays will cause the current Konica contract to be extended from September 30 to at least November 15, 1991. Joe noted some general responses to the sitewide copier survey: the Konicas

are too slow, but the repair and maintenance service is generally acceptable. Floyd Bennett asked about the cost of making copies with a laser printer versus a copier. The consensus was that the laser printer is slower and more costly, but useful in emergencies. The DocuTech and similar machines will likely bridge the gap between copiers and printers.

Image capturing equipment (videotape for use with still or video cameras) is now available and will be used to record the contents of the Graphic Arts (GA) photo library. The typical system uses a 12-inch laser disk to store up to 108,000 images and a laser printer for output. Also, GA is continuing its study of animation via computer. One potential use is for presentations to sponsors.

Moving to Building 222, the group first visited the photo studio and saw a demonstration of portrait photography. George Joch (GA photographer) quickly set up the lights and produced a portrait of a visitor on Polaroid film. The same studio is also used for table-top shots. Because most of its equipment is portable, the studio can come to the customer.

Thom Whitlock (coordinator for the GA Photo Group) schedules work for the group, dispatches photographers to assignments, and generally oversees the daily activities of the photography staff in Building 222. Thom guided the meeting attendees through the black-and-white and color processing rooms, where virtually all film handling and developing is automated.

In the black-and-white processing room, Thom pointed out that hand processing is used for all black-and-white film in GA; the goal is the highest possible quality. For black-and-white photo printing, the automated processor can make prints dry-to-dry in 55 seconds. The maximum black-and-white print size is 16-by-20 inches.

In the color processing room, GA's new automated processor can process color photos in 5 minutes. The three enlargers in this room can handle film from 35mm up to 4-by-5 inches and can produce prints up to 30-by-40 inches.

The Ilford color printer (also known as the Cibacopy Center) is a highly versatile machine that can make good quality prints and viewgraphs from slides or prints, as well as prints from viewgraphs. It

can handle originals up to 22-by-22 inches, while output is limited to 11-by-17 inches. The process takes about 6 minutes dry-to-dry. In the same room, GA produces internegatives, slides from viewgraphs, duplicate slides, and Blue Techs slides for presentations.

In the process camera room, the group saw where the photo-mechanical transfers (PMTs) are made, together with negatives and printing plates.

Chuck Malefyt, Graphic Arts Users Group Secretary



[illegible]

# WORKLOAD STATISTICS (JULY 31 THROUGH AUGUST 29, 1991)

## NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	END OF MONTH	ACTIVE DURING MONTH
CMS	1,223	1,225	419
Wylbur	1,670	1,677	319
MVS TSO	57	57	22
CICS	2,307	2,332	2
MVS Batch	2,307	2,332	625
VAX/VMS	685	698	262
Cray	365	368	133
All Systems	2,307	2,332	997

## INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				SESSION TIME (HRS)	CPU TIME (HRS)
	PRIME	NIGHT	WEEKEND	TOTAL		
<b>INTERACTIVE</b>						
CMS	10,181	2,291	235	12,707	39,181	86.80
Wylbur	5,440	217	179	5,836	5,927	4.41
MVS TSO	670	8	3	681	897	1.91
CICS	*	*	*	*	*	*
VAX/VMS	6,390	532	364	7,286	61,989	242.52
Cray	2,111	220	235	2,566	1,162	584.50
<b>IBM BATCH</b>						
Class U	7,631	2,050	1,020	10,701	**	31.32
Class W	13,114	2,773	606	16,493	**	87.61
Class X	0	645	55	700	**	29.89
Class Y	0	112	197	309	**	24.22
Nonmain	18,633	1,813	1,099	21,545	**	0.00
Total	39,378	7,393	2,977	49,748	**	173.04
<b>CRAY BATCH</b>						
u	2,111	304	235	2,650	**	259.54
w	4,296	220	186	4,702	**	90.15
x	966	376	277	1,619	**	153.27
y	212	112	176	500	**	40.29
Total	7,585	1,012	874	9,471	**	543.25
<b>VMS BATCH</b>						
W BATCH	657	313	229	1,199	**	38.62
X BATCH	7	32	2	41	**	85.11
Y BATCH	0	0	7	7	**	0.23
Total	664	345	238	1,247	**	123.96

## INPUT/OUTPUT

Lines Printed	
Local	51,988,243
Remote	43,938,870
Fiche	35,596,472
Tape Mounts	6,244
Microfiche Developed	4,359
Microfiche Frames Developed	850,383

## GRAPHICS

	# OF JOBS	# OF FRAMES
CalComp Jobs	296	*
Matrix 35mm Color	72	149
Matrix-8 x 10	0	0
Matrix-Negative	0	0

## DATA MANAGEMENT

Tapes Stored	24,344
Round Tapes Saved	133
Round Tapes Released	378
IBM 3480-Type Tapes	
Cartridges Saved	1,093
Cartridges Released	924
Datasets Exported to Tape	2,137
Datasets Imported from Tape	389

\* not available

\*\* not applicable



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COMPUTING CENTER USE IN DOLLARS BY COST CENTER (JULY 31 THROUGH AUGUST 29, 1991)

CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
<b>ADVANCED PHOTON SOURCE</b>							
130	ADVANCED PHOTON SOURCE DIV	\$227	\$339	\$0	\$346	\$102	\$1,014
272	ADVANCED PHOTON SOURCE	\$296	\$0	\$0	\$225	\$110	\$631
340	APS DIVISION MANAGEMENT	\$25	\$0	\$0	\$0	\$60	\$85
341	APS ACCELERATOR PHYSICS	\$258	\$3,588	\$0	\$44	\$118	\$4,008
342	APS DIAGNOSTICS	\$0	\$15	\$0	\$0	\$0	\$15
343	APS LINAC	\$0	\$414	\$0	\$43	\$0	\$456
344	APS RF	\$3	\$11	\$0	\$19	\$229	\$262
345	APS VACUUM	\$11	\$2,916	\$0	\$183	\$1,047	\$4,158
346	APS MECHANICAL ENGINEERING	\$0	\$1	\$0	\$0	\$85	\$85
347	APS CONTROLS	\$47	\$1	\$0	\$0	\$6	\$54
348	APS MAGNETS	\$30	\$0	\$0	\$2	\$1	\$66
349	APS POWER SUPPLIES	\$18	\$0	\$0	\$1	\$0	\$31
350	APS DIVISION MANAGEMENT	\$49	\$53	\$0	\$3	\$14	\$32
351	APS INSERTION DEVICES	\$68	\$1,419	\$0	\$130	\$176	\$2,800
352	APS BEAM LINE FRONT ENDS	\$17	\$203	\$0	\$76	\$141	\$2,792
353	APS BEAM LINE INSTRUMENTATION	\$14	\$0	\$0	\$50	\$0	\$65
360	APS CONVENTIONAL FACILITIES	\$40	\$0	\$0	\$0	\$30	\$70
361	APS PROJECT DIRECTION	\$26	\$0	\$0	\$0	\$31	\$57
362	APS MANAGEMENT GENERAL	-----	-----	-----	-----	-----	-----
SUBTOTAL		\$1,187	\$8,965	\$0	\$1,121	\$3,326	\$14,599
<b>ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH</b>							
110	BIO & MED RES DIV	\$1,909	\$816	\$92	\$1,052	\$1,434	\$5,303
125	TECHNOLOGY TRANSFER CENTER	\$83	\$24	\$0	\$12	\$113	\$233
149	ENVIRONMENTAL RESEARCH DIV	\$1,354	\$1,040	\$127	\$857	\$926	\$4,304
155	ENERGY SYSTEMS DIVISION	\$2,183	\$2,995	\$1,504	\$778	\$-2,017	\$5,442
155	ENV ASSESS & INFO SCI DIV	\$3,470	\$4,844	\$246,678	\$795	\$3,804	\$259,591
174	ENER/ENV/BIO PROG DIR	\$11	\$0	\$0	\$0	\$102	\$112
246	ES-NAT'L ENERGY SOFTWARE CTR	\$78	\$0	\$51	\$576	\$371	\$1,075
274	ENER/ENV/BIO RES PROG ADM	\$228	\$0	\$0	\$1	\$237	\$466
SUBTOTAL		\$9,315	\$9,719	\$248,452	\$4,072	\$4,968	\$276,526
<b>ENGINEERING RESEARCH</b>							
102	EBR-II PROJECT-ANL WEST	\$1,678	\$13	\$1,590	\$2,164	\$107	\$5,553
104	FUELS AND PROCESSES	\$1,265	\$283	\$18	\$564	\$224	\$2,354
107	CHEMICAL TECHNOLOGY DIVISION	\$496	\$492	\$0	\$640	\$483	\$2,111
112	REACTOR ENGINEERING	\$6,963	\$989	\$1,363	\$2,082	\$2,670	\$14,066
114	MATLS & COMP TECH DIV	\$5,850	\$4,323	\$754	\$2,544	\$1,850	\$15,322
115	ENGINEERING PHYSICS DIVISION	\$3,932	\$1,443	\$2,115	\$1,471	\$1,817	\$10,679
116	REACTOR ANALYSIS	\$26,577	\$15,717	\$48,818	\$10,181	\$9,876	\$111,169
117	APPLIED PHYSICS-ANL WEST	\$1,330	\$60	\$2,098	\$345	\$443	\$4,276
118	REACTOR EXP & EXAM DIV	\$10,887	\$4,026	\$9	\$284	\$1,149	\$16,355
171	ENGRG RES PROG DIR	\$3	\$0	\$0	\$0	\$106	\$109
197	SPECIAL PROJECTS OFFICE	\$308	\$2	\$0	\$5	\$156	\$470
211	ENGINEERING PHYSICS DIVISION	\$59	\$26	\$0	\$5	\$3,079	\$3,170
269	CHEM TECH DIV-ANALYTICAL CHEM	\$113	\$5	\$0	\$5	\$110	\$233
271	ENGRG RES PROG ADMIN	\$242	\$0	\$0	\$13	\$353	\$608
SUBTOTAL		\$59,702	\$27,379	\$56,666	\$20,304	\$22,425	\$186,475
<b>PHYSICAL RESEARCH</b>							
105	MATERIALS SCIENCE DIVISION	\$576	\$6,747	\$17,432	\$1,317	\$838	\$26,910
109	PHYSICS DIV	\$1,481	\$802	\$37	\$1,186	\$459	\$3,965
120	CHEMISTRY DIV	\$977	\$3,837	\$35,943	\$452	\$691	\$41,899
136	INT PULSE NEUT SOURCE PROG	\$130	\$9,057	\$6,199	\$570	\$284	\$16,241
137	HIGH ENERGY PHYSICS DIV	\$579	\$1,102	\$3,354	\$577	\$862	\$6,473
139	DIV OF EDUCATIONAL PROGRAMS	\$826	\$5	\$0	\$102	\$276	\$1,210
145	MATHEMATICS & COMPUTER SCI DIV	\$89	\$135	\$724	\$2,043	\$4,729	\$7,720
146	CTD DIV - SCI APPL & RES	\$38	\$7	\$232	\$105	\$227	\$610
273	PHYSICAL RESEARCH PROGRAM ADMIN	\$100	\$60	\$0	\$34	\$112	\$306
SUBTOTAL		\$4,796	\$21,751	\$63,922	\$6,384	\$8,479	\$105,333
<b>EXTERNAL</b>							
751	FERMI NATIONAL LABORATORY	\$616	\$0	\$0	\$845	\$522	\$1,983
752	NAVY	\$12,027	\$0	\$0	\$1,580	\$4,202	\$17,809
753	MORGANTOWN ENERGY TECH CENTER	\$12	\$0	\$0	\$0	\$0	\$12
754	DEPARTMENT OF ENERGY AT ANL	\$0	\$22	\$0	\$9	\$0	\$31
760	ABBOTT LABORATORIES	\$3	\$0	\$49	\$0	\$0	\$52
763	GENERAL ELECTRIC COMPANY	\$0	\$1	\$0	\$0	\$0	\$1
766	BECHTEL NATIONAL, INC.	\$0	\$118	\$710	\$31	\$1	\$860
775	SMITHSONIAN	\$0	\$0	\$0	\$0	\$4	\$4
777	UNIVERSITY OF CHICAGO AT ANL	\$15	\$0	\$0	\$153	\$0	\$169
778	ARGONNE CREDIT UNION	\$6	\$0	\$0	\$0	\$0	\$6
779	UNIVERSITY OF ILLINOIS AT CHICAGO	\$6	\$0	\$0	\$0	\$0	\$6
780	NEW BRUNSWICK LABORATORY	\$12	\$0	\$0	\$0	\$0	\$12
781	STATE OF ILL. DEPT. MENTAL HEALTH	\$0	\$0	\$0	\$0	\$8	\$9
782	PACKER ENGINEERING	\$3	\$39	\$0	\$2	\$0	\$43
783	WEST VALLEY NUCLEAR SERVICES CO	\$93	\$0	\$0	\$1	\$2	\$96
784	SUPERCONDUCTING SUPER COLLIDER LABS	\$0	\$51	\$168	\$0	\$63	\$282
787	ILLINOIS INSTITUTE OF TECHNOLOGY	\$0	\$12	\$17	\$3	\$211	\$243
SUBTOTAL		\$12,793	\$242	\$945	\$2,625	\$5,012	\$21,617



CC	CCHNAME	ITEM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
		OPERATIONS					
143	SUPP SERV DIV - ELEC DEPT	\$202	\$8	\$0	\$280	\$376	\$866
148	HUMAN RESOURCES-MEDICAL DEPT	\$1,644	\$0	\$0	\$254	\$463	\$2,361
150	SUPPORT SERV DIV- SPEC MATLS	\$210	\$0	\$0	\$25	\$159	\$394
161	TECH INFO SERVICES DEPT	\$643	\$23,833	\$0	\$2,414	\$1,440	\$28,493
201	OFFICE OF THE DIRECTOR	\$234	\$0	\$0	\$127	\$132	\$493
202	OFC OF CHIEF OPER OFCR	\$17	\$0	\$0	\$75	\$101	\$193
210	SUPP SERV DIV - CENT SHOPS	\$495	\$0	\$0	\$78	\$577	\$1,150
212	SUPPORT SERVICES DIVISION	\$170	\$0	\$0	\$47	\$110	\$327
222	PLANT FAC & SERV-LOADING FAC	\$0	\$0	\$0	\$0	\$100	\$100
232	SUPPORT SERV DIV - SECURITY	\$254	\$0	\$0	\$0	\$132	\$386
234	SUPP SERV DIV-HEALTH PHY	\$263	\$199	\$0	\$59	\$461	\$982
235	SUPP SERV DIV-ENV SAFE HEALTH	\$873	\$40	\$0	\$129	\$396	\$1,439
236	SUPPORT SERV DIV - FIRE DEPT	\$7	\$0	\$0	\$0	\$101	\$108
241	COMPUTING AND TELECOM DIV	\$28,332	\$0	\$0	\$4,586	\$3,395	\$36,313
247	COMP & TEL DIV- COM SERV	\$2,250	\$0	\$0	\$47	\$1,605	\$4,701
260	SUPP SERV DIV-GRAPHIC ARTS	\$250	\$589	\$0	\$38	\$267	\$1,144
265	ELECTRONIC PUBLISHING SERVICE	\$19	\$6	\$0	\$2	\$0	\$28
275	OFFICE OF PUBLIC AFFAIRS	\$856	\$0	\$0	\$60	\$224	\$1,140
276	OFC PUB AF - MOTN PIC UNIT	\$44	\$0	\$0	\$0	\$18	\$62
296	TELECOM COST/RECOVERY	\$0	\$0	\$0	\$65	\$0	\$65
315	SUPP SERV DIV-MATLS & SERV	\$3,089	\$24	\$0	\$1,037	\$336	\$4,486
316	PLANT FAC & SERV-VEH MAINT	\$0	\$0	\$0	\$0	\$168	\$168
317	PLANT FAC & SERV-DRIVARIG SERV	\$19	\$0	\$0	\$1	\$100	\$120
319	SUPP SERV DIV-TRAVEL OFC	\$3	\$0	\$0	\$0	\$100	\$103
322	SUPP SERV DIV-PROCUREMENT	\$42	\$0	\$0	\$0	\$154	\$196
333	QA, ENVIR & SAFETY OFC	\$118	\$1	\$0	\$20	\$198	\$336
335	SUPP SERV DIV - INSPECTION	\$15	\$0	\$0	\$0	\$2	\$15
400	OFC OF CHIEF FIN OFFICER	\$48,641	\$0	\$0	\$3,313	\$12,186	\$64,140
401	ACCOUNTING	\$0	\$0	\$0	\$0	\$100	\$100
402	OFC CHIEF FIN OFCR-DATA ENTRY	\$9	\$0	\$0	\$0	\$0	\$9
403	BUDGET OFFICE	\$0	\$0	\$0	\$0	\$100	\$100
410	HUMAN RESOURCES DEPARTMENT	\$13,506	\$0	\$0	\$1,282	\$1,926	\$16,715
412	AFFIRM ACTION PROGRAM	\$62	\$0	\$0	\$45	\$101	\$207
501	PLANT FAC & SERV-BLDG MAINT	\$36	\$0	\$0	\$223	\$304	\$304
502	PLANT FAC & SERV-INSTALLATIONS	\$28	\$0	\$0	\$0	\$100	\$132
503	PLANT FAC & SERV-GROUNDS	\$0	\$0	\$0	\$0	\$100	\$100
504	PLANT FAC & SERV-CUSTODIAL	\$3	\$0	\$0	\$0	\$100	\$103
505	PLANT FAC & SERV-WASTE MGMT OP	\$53	\$0	\$0	\$66	\$100	\$219
506	PLANT FAC & SERV-PLANT MGR OFC	\$653	\$0	\$0	\$25	\$342	\$1,020
510	PLANT FAC & SERV-UTILITY SYST	\$0	\$0	\$0	\$0	\$100	\$100
512	PLANT FAC & SERV-FAC PLNG/ENG	\$698	\$0	\$0	\$31	\$202	\$931
530	SITE MGRS OFC-ANL WEST	\$184	\$2	\$0	\$6	\$105	\$297
531	PERSONNEL-ANL WEST	\$194	\$0	\$0	\$70	\$100	\$364
532	SPECIAL MATLS-ANL WEST	\$681	\$0	\$0	\$152	\$233	\$1,066
533	ACCOUNTING-ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
534	PURCHASING-ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
535	SECURITY - ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
536	SAFETY STAFF-ANL WEST	\$72	\$0	\$0	\$0	\$102	\$174
537	INFORMATION SERVICE-ANL WEST	\$0	\$4	\$0	\$2	\$100	\$106
538	MATLS HANDLING-ANL WEST	\$79	\$0	\$0	\$8	\$100	\$187
548	ANL WEST GENERAL EXPENSE	\$149	\$0	\$0	\$42	\$2	\$193
550	COMPUTER APPL & SERV ANL-W	\$99	\$0	\$0	\$12	\$101	\$213
554	MACHINE SHOP-ANL WEST	\$26	\$0	\$0	\$4	\$130	\$130
556	SITE ENGRG-ANL WEST	\$94	\$0	\$0	\$22	\$100	\$217
557	PLANT SERVICES-AW-SERVICE REQ	\$40	\$3	\$0	\$5	\$100	\$149
558	PLANT SERVICES-AW-FUNCTION	\$3	\$0	\$0	\$0	\$0	\$3
561	OFC OF QUALITY ASSURANCE - AW	\$3	\$0	\$0	\$0	\$101	\$104
SUBTOTAL		\$105,760	\$24,714	\$0	\$15,059	\$28,313	\$173,845
TOTAL		\$193,554	\$92,770	\$369,985	\$49,565	\$72,522	\$778,396

## COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	Onsite (Illinois)	Onsite (Idaho)	Offsite (Area Code 708)
Network Operations Center	2-5421	8-972-5421	972-5421
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	n.a.	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		
CICS, CMS, Wylbur, and TSO Interactive Computing Services			
IBM 3270 Protocol Converter	2-3270	n.a.	
1200 to 19.2K Bits Per Second (Onsite)			972-3270
1200 to 2400 Bits Per Second (Offsite)			972-3219
9600 to 19.2K Bits Per Second (Offsite)			
X.25 Terminal Multiplexor	2-2525	n.a.	
300 to 19.2K Bits Per Second(Onsite)			972-2525
1200 to 2400 Bits Per Second (Offsite)			972-2519
9600 to 19.2K Bits Per Second (Offsite)			n.a.
IBM 3174 Cluster Controller	2-3174	n.a.	
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	n.a.	972-2212
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	n.a.	972-7612
300 Bits Per Second	2-7603*	n.a.	972-7603*
* When using a 300 bits per second modem, you must use a capital "P" to logon.			
Batch Remote Job Entry Service			
2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573
Central DEC VAX Cluster			
1200 to 19.2K Bits Per Second (Onsite)	2-8700	n.a.	
1200 to 2400 Bits Per Second (Offsite)			972-8700
9600 to 19.2K Bits Per Second (Offsite)			972-8745
Argonne TCP/IP Network			
1200 to 19.2K Bits Per Second (Onsite)	2-5588	n.a.	
1200 to 2400 Bits Per Second (Offsite)			972-5588
9600 to 19.2K Bits Per Second (Offsite)			972-4726
Argonne MFEnet Dial-Up			
300 to 19.2K Bits Per Second	2-7920	n.a.	972-7920

## COMPUTING CENTER SERVICE SCHEDULE (All Times Are Central Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	VM/XA	VMS	MFEnet Gateway
Monday to Thursday	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

\*\* Except for the interruption of UNICOS from 4:00 a.m. until 8:00 a.m. on Mondays for maintenance, service continues uninterrupted past 4:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 3:00 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 3:00 p.m. before making plans that require the availability of a service the following morning.



[illegible]

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Argonne National Laboratory  
Computing and Telecommunications Division  
October 1991

### COMPUTING CENTER WORKSHOP

The Computing and Telecommunications Division (CTD) is offering one workshop. There is no charge for attending this workshop. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the workshop and notify attendees of any schedule changes. CTD will reschedule or cancel any workshop with fewer than six registrants *one week* prior to the scheduled date of the workshop.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

### CRAY X-MP FORTRAN VECTORIZATION WORKSHOP

**Goals:** To optimize Fortran programs on the Cray X-MP/18 high-performance computer. Following a brief discussion of Cray X-MP architecture, vectorization, and optimization, the tools and techniques will be used on the programs of the workshop participants.

**Length of Workshop:** Two 4-hour sessions

**Dates and Time:** October 22 and 24, 1991 (Tuesday and Thursday), 1:00 p.m. to 5:00 p.m.

**Location:** Building 221, Room A-261

**Instructors:** Pete Bertoncini  
Tom Canfield  
Larry Rudsinski

### COMPUTER-BASED TRAINING COURSES

Currently, CTD offers one computer-based training course in CMS and five courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

#### IBM CBT Course

(Enter SLFTEACH at the CMS prompt.)

**SLFTEACH** Introduction and Advanced Concepts of Xedit

#### DEC CBT Courses on the Central VAX 8700

(Enter RUN "course name" at the DCL level.)

Course Name	Course Title
VMSCAI	Introduction to VAX/VMS
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers

To register for a class, call extension 2-5405.



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DEPOSITORY

DEC 11 1991

UNIVERSITY OF ILLINOIS



## “First Among Equals”

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# COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory

Building 221

Argonne, Illinois 60439-4844

FAX: 708-972-5983

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

		Room	Phone	Electronic Mail Address
Division Director	David Weber	A251	2-7155	B22788 AT ANLVM
Computer Protection Program Manager	Jean Troyer	A237	2-7440	B18216 AT ANLVM
Computing and Telecommunications Operations	Larry Amiot	B243	2-5432	B10523 AT ANLVM
Computer Network	Bob McMahon	B239	2-7270	B17385 AT ANLVM
Data Communications	Linda Winkler	B251	2-7236	B32357 AT ANLVM
Service Engineering	Paul Phillips	D118	2-4343	B36679 AT ANLVM
Network and Computer Operations	Gary Schlesselman	A113	2-5437	B09819 AT ANLVM
Day and Weekend Operation	Bob Bilshausen	A134	2-5421	
Document Distribution Counter		A134		
Evening and Overnight Operation	Mike Monczynski	A134	2-5421	
Tape Librarian	Sandra Vasko	A134	2-7681	B18669 AT ANLVM
Trouble Reporting		A134	2-5421	NOC AT ANL.GOV
Systems Programming	John Volmer (Acting)	B211	2-5449	B32831 AT ACHILLES.CTD.ANL.GOV
Telephone Services	Allen Winter	B247	2-2764	B07059 AT ANLVM
User Services	Fred Moszur	A121	2-7419	B27564 AT ANLVM
Computer Use Authorizations	Fran Carnaghi	A147	2-5425	B27596 AT ANLVM
Consultants		A139	2-5405	CONSULT AT ANLVM
Documentation Advice		A139	2-5405	CONSULT AT ANLVM
Education and Assistance	Pete Bertoncini (Acting)	E101	2-4827	B15013 AT ANLVM
Management Information Systems	Diane O'Brien	B151	2-7167	B26424 AT ANLVM
Financial Systems	Nick Moore	D239	2-8075	B31048 AT ANLVM
Human Resource Systems	Bob Hischier	B147	2-7272	B22639 AT ANLVM
Information and Production Services	Miriam Bretscher	B139	2-7252	B26187 AT ANLVM
Materials and Plant Systems	Rich Slade	B159	2-7329	B32848 AT ANLVM
Planning, Finance, and Administration	Mike Boxberger	A245	2-5638	B34540 AT ANLVM
Scientific Applications and Research	Charles Mueller	A231	2-7153	B11284 AT ANLVM

The Division operates a Cray X-MP/18 with UNICOS 6.1.4, a Sun 3/280 gateway, a central VAX cluster (a DEC VAX 8700 and a DEC VAX 6410) with VMS 5.4, an IBM 3084QX9, and three Hewlett-Packard 3000 minicomputers. Software on the IBM computers includes VM/XA SP 2.1 with CMS Release 5.6, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E) Release 1.3.0, and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 708-972-5415.

The *Argonne Computing Newsletter* is published monthly by the Computing and Telecommunications Division, Argonne National Laboratory, Argonne, Illinois 60439; edited, prepared, and formatted by April Heiberger with CMS, Waterloo Script, and the Linotype L300P typesetter. This *Newsletter* was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

## COMPUTING COMMENTS

### FDDI OPPORTUNITIES AVAILABLE NOW

CTD continues to make progress with Fiber Distributed Data Interface (FDDI) networks at Argonne. FDDI is a widely used networking standard that runs at 100 megabits per second. The current Laboratory-wide FDDI network includes the Building 900 Transmission Control Protocol/Internet Protocol (TCP/IP) networks, a T3 (45 megabits per second) connection to the National Science Foundation network (NSFnet), a Cray X-MP/18, a Sun 4/490 Server, and a Silicon Graphics Inc. workstation. We plan to connect the VAX 6410 to the CTD FDDI network before the end of the year.

To extend FDDI networking throughout the Laboratory, CTD has submitted a General Physical Plant (GPP) proposal to install cable in the entire Laboratory with FDDI-compatible fiber-optic cable. Some users in buildings with fiber-optic cable already installed can acquire appropriate FDDI routers to attach to the Laboratory-wide FDDI network now. CTD includes the installation of fiber-optic cable when trenching is necessary to provide telephone services. Consequently, Buildings 221, 308, 362, and 900 have FDDI-compatible cable. Buildings 205, 212, and 214 are scheduled for additional telephone cabling and will have fiber-optic cable by the end of this year. Users located in or near one of these buildings who need the bandwidth available with a Laboratory-wide FDDI network connection should contact the CTD Computer Network Section at extension 2-4360.

### CTD PLANS TO SIMPLIFY AND EXPAND GRAPHICS OUTPUT PROCESSING

CTD activities to improve graphics output capabilities will increase network access to available graphics output devices for distributed computer users. At the same time, CTD will simplify graphics output processing for users of distributed VAX computers and central computer users.

CTD will make available a new color PostScript printer and will upgrade the Matrix camera and CalComp 5835 plotter to accept PostScript output. Once CTD's existing devices have been upgraded, all CTD graphics output devices will be able to

accept PostScript output from the Laboratory-wide Ethernet network.

A wide variety of computer applications (including word processing, drawing, charting, and engineering) are equipped with PostScript output capabilities. Users of workstations (such as IBM Personal Computers, Apple Macintosh personal computers, and Sun workstations) will be able to use the network to send PostScript output to available graphics devices. There are still a few rare occasions where applications produce PostScript output files that do not print correctly on all PostScript devices.

In the past, achieving device independence meant using graphics metafiles for subsequent postprocessing to accommodate special device interfaces. The availability of the PostScript page description language in application programs and in output devices achieves device independence in a more straightforward manner. Users who need output in multiple media may no longer need to create intermediate graphics metafiles that require additional postprocessing for a specific graphics device. The cases where metafiles are still useful include when users may want to review or preview a plot at a terminal or when the metafile will be included as part of another plot by Tellagrap or Disspla.

CTD will use the VAX AlisaPrint product to manage queues of output sent to various PostScript devices. CTD will modify existing utilities and procedures to provide new capabilities that PostScript enables. These activities will simplify graphics processing for current users of Disspla and Tellagrap and most other graphics users. However, those few users with computer programs that produce device-specific output may be adversely affected. If your graphics programs that currently use central output devices are unable to create graphics metafiles or PostScript output files, please call the User Services consultants at extension 2-5405 to discuss possible alternatives.

Specific instructions for sending PostScript output to the upgraded graphics devices will appear in future *Newsletters*.



### USERS URGED TO CONVERT 9-TRACK TAPES TO CARTRIDGES

CTD urges all users presently storing data on older 800 bits per inch (bpi), 1600 bpi, and 6250 bpi 9-track tapes to convert to the newer, more reliable cartridge tapes (see "Conversion to IBM 3480-Type Cartridges Continues as Planned" in the September 1991 *Newsletter*.) MVS, CMS, and Cray UNICOS each have access to 3480-type drives; the central VAX cluster does not.

There are many benefits in copying your archival data. Since we started using the cartridges about two years ago, they have been about 99.99 percent reliable (that is, very few input/output errors). The cartridge tapes hold approximately 10 percent more data and cost 25 percent less in storage costs than the 9-track 6250 bpi tape reels.

As the 9-track tapes in our library have gotten older, their reliability has decreased. The National Archive and Records Administration has stated in its guidelines that round reels over 5 years old are subject to physical deterioration and round reels over 10 years old must be replaced (see *Code of Federal Regulations 1236*, Part 1234.28). Many of the archival tapes in our vault may already have deteriorated to the point that the data stored on them may be lost.

To obtain a listing of tapes stored under your badge or to expire (release) a tape, enter (in Wylbur):

**DO TAPELIBR**

Or enter (in CMS or on the CTD VAX cluster):

**TAPELIBR**

To list the contents of a tape, enter (in Wylbur):

**DO TAPEDUMP**

To copy a 9-track tape to a cartridge tape (in Wylbur), enter:

**DO TAPECOPY**

After copying your tapes, do not forget to expire the old tapes. If you have many tapes to release, the tape librarian will expire them for you. Send a list of tapes to be released with your signature and the date to Sandy Vasko (Building 221, Room A-134).

### COMPUTING CENTER THANKSGIVING HOLIDAY SCHEDULE

The CTD computing systems will remain in operation with at least one operator in attendance throughout the Thanksgiving 1991 holiday to provide services comparable to the normal weekend services. An operator will be available to accept network and computing system trouble reports, to mount tapes, to check personal tapes in and out, and to process and distribute output from all production output devices (for example, the IBM 3800 laser printer and impact printer, the CalComp 5835XP color plotter, and microfiche). One exception is the Matrix 35mm slide camera. Unless the film was developed prior to 3:30 p.m. on Wednesday, November 27, 1991, it will not be available for distribution until Monday, December 2, 1991.

All interactive and batch computing will be available at weekend and holiday rates from 7:00 a.m. on Thursday, November 28, 1991, until 7:00 a.m. on Monday, December 2, 1991. For information about unexpected changes in service, call the Current System Status Recorded Message at extension 2-5466. For assistance in accessing scheduled services, call the computer operator on duty at extension 2-5421.

### CRAY NEWS

#### CRAY NQS AND INTERACTIVE USERS MAY BE AFFECTED BY CONVERSION TO DOMAIN NAME SERVERS

On Tuesday, November 12, 1991, CTD will begin using the Internet Domain Name Service (DNS) on the Cray X-MP/18. The DNS name servers `dns1.ctd.anl.gov` and `dns2.ctd.anl.gov` will be used by the Cray to resolve references to remote hosts specified by Internet nodenames. This change will affect Cray users who use `rlogin`, `rcp`, and `rsh` and the VAX or Sun `cray` command to access the Cray from remote hosts. Users who use these commands must have entries in a Cray `.rhosts` file that authorize access to the Cray by specific userids from specific remote hosts. The `.rhost` entries are in the form:

`hostname userid`

At present, the "hostname" specified in the `.rhosts` file has to agree with the "official" hostname in the Cray `/etc/hosts` file for commands like `rlogin`, `rcp`, and `rsh` and the VAX or Sun `cray` command to work. Use of aliases or nicknames in the `.rhosts` file will fail. Entries in the `/etc/hosts` file contain an Internet address, an "official" hostname, and alias names for each remote host. The "official" hostname is the first entry after the Internet address in the `/etc/hosts` file. The "official" hostname should be the fully qualified Internet name for the host. The Cray `/etc/hosts` file was not constructed by following this format. There are still many entries in the Cray `/etc/hosts` file for which the "official" hostname is really an alias for that host. Because the Cray `/etc/hosts` file was constructed in this way, existing Cray `.rhosts` files most likely have "hostname" entries that use the remote host alias name instead of the "official" remote hostname.

After the cutover to DNS on November 12, 1991, the "hostname" in the `.rhosts` files must agree with the "official" hostname used by the DNS name servers. The host files used by DNS use the fully qualified Internet name for the "official" name of all hosts. After we begin using DNS to resolve references to remote hosts, the "official" hostname will become the fully qualified Internet name for each remote host. Cray users will have to change the entries in their Cray `.rhosts` files, if they want `rlogin`, `rcp`, and `rsh` and the VAX or Sun `cray` command to continue to work.

The morning of November 12, 1991, users of the VAX or Sun `cray` command should reissue the `cray configure` command from each host from which they access the Cray to update their Cray `.rhosts` file. Other users will have to edit their Cray `.rhosts` file and to modify each hostname entry to use the correct Internet name.

## MANAGEMENT INFORMATION SYSTEMS

### INTEGRATED FINANCIAL SYSTEM UPDATE

Cost Accounting successfully closed the financial system books for FY1991 during the first two weeks of October 1991. During October 1991, they will purge the unneeded data from the Integrated Financial System (IFS) files. The purge process is complicated by year-end cost center reorganizations.

The IFS Project Team expects to close the October 1991 books by November 8, 1991, and to submit the user's financial reports on November 10 or 11, 1991. The reports should then complete printing by November 14, 1991. The financial system books for November 1991 should be closed on time.

Progress on all phases of the IFS project will be reported at the Financial Applications Committee to Effect Telesis (FACET) meetings held on the second Wednesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

## PERSONAL COMPUTING

### LABORATORY MAC USERS SET DATE FOR CONVERSION TO SYSTEM 7

The Macintosh Networking Group has set Monday, November 4, 1991, as the start of the conversion to System 7. System 7 offers Apple Macintosh users many new capabilities (such as multitasking, peer-to-peer file sharing, and inter-application communication). This article describes some considerations and guidelines for the upgrade. Nevertheless, users who decide not to upgrade to System 7 need to install the System 7 print software. To install System 7, your Apple Macintosh will need a minimum of 2 megabytes of memory. If you run large applications or want to run multiple applications, your Apple Macintosh will probably need more than 2 megabytes of memory.

Early Laboratory testers of System 7 have found System 7 to be reliable. Some of the new System 7 features (for example, AppleEvents and Publish/Subscribe) will increase network traffic. Network managers responsible for LocalTalk networks that currently have heavy network loads will want to monitor closely these networks as the LocalTalk Apple Macintoshes upgrade to System 7. Divisions should *not* automatically enable the file server feature for all System 7 machines. Instead, divisions should select a few machines to use as file servers to avoid a long list of AppleShare servers within the chooser.

Argonne has purchased a site license for System 7. System 7 software and installation instructions are available on Public Volume. Public Volume is on the AppleShare fileserver CTDVAXserver in



zone Public AlisaTalk (see "Minutes of Macintosh Users Group Meeting Held September 11, 1991" in the October 1991 *Newsletter* for instructions on accessing Public Volume). You can perform a network installation to upgrade your Apple Macintosh to System 7. If you plan to obtain System 7 from Public Volume, you should retrieve it before November 4, 1991. Many users will be retrieving the software on this date, and fileserver response will be slow.

There are several known incompatibilities between System 7 and the previous Apple Macintosh systems and applications. Apple has provided a HyperCard stack (Compatibility Checker 1.0) that will survey your Apple Macintosh and report incompatible System 7 applications. If the checker flags an application as incompatible with System 7, try it anyway. Laboratory testers have found many applications flagged as incompatible with System 7 that, in fact, do run. You can find this HyperCard stack on Public Volume with the System 7 software.

System 7 print software has been changed and is incompatible with the System 6 LaserWriter driver and Laser Prep files. Apple LaserWriters (and other PostScript printers) should not be shared by System 6 and System 7 Apple Macintoshes unless the System 6 Apple Macintoshes use the System 7 printer driver. By using the System 7 installer, System 6 users can perform a customized installation to obtain the System 7 LaserWriter driver. A copy of the System 7 LaserWriter driver and installer is in the System 7 Printing folder on Public Volume.

Many divisions use AlisaPrint software on the central VAX cluster to return output from the Cray X-MP and central IBM systems to LaserWriters located within their divisions. On November 4, 1991, we will reconfigure all AlisaPrint PostScript printers (printers located in AppleTalk zone Public AlisaTalk) to work only with System 7 print software. Note that Media Services (formerly Graphic Arts) PostScript printers appear in the Public AlisaTalk zone. After November 4, 1991, Apple Macintoshes without the System 7 printer driver will no longer be able to use AlisaPrint PostScript printers.

Even if you decide not to upgrade your Apple Macintosh now, we recommend that you *install* the System 7 print driver on your System 6 Apple Macintosh. For assistance with upgrading to System 7 or System 7 drivers, contact your division's Macintosh Networking Group representative.

## **PATHWORKS PC-LAN SERVICES AVAILABLE**

This article explains how you can use the Pathworks product from Digital Equipment Corporation (DEC) in the Argonne computing environment to use resources external to your personal computer (PC). Pathworks works in and serves three popular environments: (1) the PC user who works at the disk operating system (DOS) prompt (C:\), (2) the PC user who works in the MS Windows environment, and (3) the remote computer user who works either at the command line or in the X Window System environment. Pathworks provides utility programs (including E-mail, terminal emulation, and screen print); works with multiple network options described below; and may be served resources from OS/2, Unix, and VAX/VMS platforms. Services for PCs are available from Argonne's central VAX cluster.

### **Network Options**

The Pathworks transport options include Digital Equipment Corporation network (DECnet), Local Area Terminal (LAT), Local Area System Transport (LAST), and Transmission Control Protocol/Internet Protocol (TCP/IP). DECnet and TCP/IP are routable protocols that can serve as transport for terminal sessions and access to file and print resources either from the command line or from PC applications and for X Window System sessions. LAT and LAST are non-routable protocols that provide similar capabilities with lower processor overhead but are limited to a local area network (LAN) such as the Laboratory-wide Ethernet at Argonne. DECnet and TCP/IP also provide the capability for asynchronous links that allow access from remote sites via modem. Pathworks is Lan Manager compliant, which means that applications that work with Lan Manager can use remote resources. To access PC-LAN servers running Microsoft's Lan Manager product, you can load the Xerox Network System (XNS) protocol drivers from Lan Manager with the Pathworks modules, because both Pathworks and Lan Manager use the Network Driver Interface Specification (NDIS) network interface drivers that allow multiple active concurrent protocols.

### **Common Services for All DOS Environments**

The common services for the DOS user include access to files in a remote server, remote printers (including a print screen utility for text), and remote disks used either as sources of file space or shareable



programs. All remote resources appear to the DOS user to be local devices accessible from either the command line or application programs. No new commands (other than DOS commands) are necessary to use the remote resources. These resources are equally available to programs running in the MS Windows 3.0 operating environment.

### Pathworks Server Options

Currently, there are three options for establishing servers from which Pathworks PCs can obtain services: (1) PCs running the OS/2 operating system, (2) DEC Ultrix (Unix) systems running on Reduced Instruction Set Computing (RISC) platforms, and (3) DEC VMS systems running on the VAX hardware. The largest variety of services is available from VAX/VMS servers. The Argonne central VAX cluster provides resources for Pathworks PCs. PCs with Pathworks use VAX servers as electronic mail gateways to obtain access to all Argonne and external electronic mail networks.

Services are available to individual users and groups. By using the security and protection features of VAX/VMS, you can designate PC-accessible resources and confine them to access by groups of PC users, much as they are when PCs participate in PC LANs (which are collections of PCs that access a common server). Pathworks PC users are not limited to accessing only certain servers but can access all Pathworks servers accessible to the PC via the network and to which they have access rights or accounts. All Pathworks servers on the Laboratory-wide Ethernet (including all VAXes at Argonne) are potential resource servers for your PC.

### The DOS Prompt Environment

At the DOS prompt, the utilities provided by Pathworks include a full-screen editor called SEDT with word processing or text formatting features, an electronic mail utility called MAIL, and network file transfer and file manipulation utilities and commands. Also included is a VT220 terminal emulator called SETHOST, which uses DECnet CTERM, LAT, and/or TCP/IP telnet to establish up to four terminal sessions to remote computer systems. If you need graphics terminal emulation, you can use the Kermit VT340 emulator, available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy), and other terminal emulators (such as Reflection or SmarTerm) that work with Pathworks network transport.

### The DOS MS Windows Environment

Pathworks utilities also run in the MS Windows 3.0 environment. MS Windows applications available under MS Windows include a VT320 terminal emulator that you can use to create multiple sessions to remote computer systems (as with the SETHOST emulator described above); NFT, a network file transfer utility; and FAL, a network slave that permits PC file access from remote Pathworks systems.

### The X Window System Environment

Pathworks has programs that enable the PC to be used as an X Window System server that can display and interact with applications running on a remote X Window System client. For example, you can run a program that creates graphics output with the Disspla library in one of the central computers and displays the graphics output in a window on the PC. This Pathworks capability is different from those described above in that the PC is used as an input and output device for a remote computer rather than to run application programs. In instances where a PC is available, it is a low-cost entry into X Window System computing. You can suspend the Pathworks X Window environment to run DOS applications. You can also access the X Window System environment from the MS Windows environment. Pathworks servers provide several X Window System utility programs as desktop accessories, such as a calendar, electronic mail, and the Bookreader online documentation browser (see "X Window Users Gain Access to DEC Documentation Via DECwindows Bookreader" in the October 1991 *Newsletter*).

### Other Print, Disk, and Back-Up Capabilities

Pathworks for DOS provides miscellaneous capabilities (such as the ability of a PC with an attached printer to be shared among PC users via a queue on the server, control of network versions of programs using virtual disks with limited simultaneous access, and a capability to back up PC disks to the server storage areas. The price for a Pathworks license for your PC is less than that for a good terminal emulator.

For information on acquiring Pathworks for your PC and on using Pathworks services in the Argonne central VAX cluster, contact Rich Raffenetti at extension 2-8497 or Jim Regula at extension 2-7622. You will need a license for your PC, a connection to the Laboratory-wide Ethernet, and an account on the



VAX cluster or some other Pathworks resource server.

### **ASYNCHRONOUS DATA COMMUNICATIONS FOR THE PERSONAL COMPUTER CLASS SCHEDULED**

CTD will offer an *Asynchronous Data Communications for the Personal Computer* class on Friday, November 15, 1991, from 2:00 p.m. to 4:00 p.m. in Building 221, Room A-216. This class will assist Argonne personnel in understanding and applying basic data communication properties to Laboratory-specific equipment (such as Asynchronous Communication Interfaces [ACIs], Asynchronous Data Interfaces [ADIs], and voice/data lines) by using commercial and public domain communication software for the personal computer. The class schedule is appended to this *Newsletter*.

## **VAX/VMS NEWS**

### **NEW DEFAULT VMS PROMPT IMPLEMENTED**

On Tuesday, October 8, 1991, CTD implemented a default prompt in the Argonne central VAX cluster that includes the identification of the cluster node. Since we installed the VAX 6410 and changed the node name of the VAX 8700, some users have logged into the wrong system by using incorrectly configured software (see "NCSA Telnet Requires Revision to CONFIG.TEL" in the July 1991 *Newsletter*). This new default prompt will tell you which node you are logged into. The prompt replacing the "\$" is "CVn \$," where "n" is either 1 or 2. This prompt is an abbreviation of the node name ANLCVn.

If you wish, you may set the prompt yourself to another value. For example, to change the system prompt to a string of your choosing, enter:

```
$ SET PROMPT = "YES ? "
```

or

```
$ SET PROMPT = ":-) "
```

This new prompt is in effect until you logout. Place the prompt-setting command in your LOGIN.COM file to set the prompt for future sessions. For

detailed information on setting your prompt value, enter:

### **HELP SET PROMPT**

If you find that your attempt to access a specific VAX cluster member ends up connecting your terminal session to the wrong node, call the User Services consultants at extension 2-5405 for assistance in determining the reason and correcting the condition.

## **BITS & BYTES**

### **MILNET AVAILABLE THROUGH FEDERAL INTEREXCHANGE**

On Friday, November 15, 1991, the Defense Information Service Agency will decommission Argonne's direct connection to MILnet, a U.S. Department of Defense packet switching network. Argonne MILnet usage has dropped to a few thousand packets per month. In October 1990, the National Energy Research Supercomputer Center upgraded the Energy Science network (ESnet) to T1 (1.544 megabits per second) links that allow Transmission Control Protocol/Internet Protocol (TCP/IP) Internet access for interactive sessions, file transfers, and mail services. ESnet also allows Argonne users to access MILnet sites through ESnet connections to the Federal Interexchange gateways (FIX) located in Maryland and at NASA Ames in California. Users should notice no change in their use of MILnet.

### **IBM 3800 LASER PRINTER FACTS**

Since November 1, 1978, our old workhorse printer, the IBM 3800 laser printer, has been in service. It has processed 204 million feet of computer paper (enough to go around the earth 1.55 times!), resulting in 290 million pages of computer-generated output containing approximately 11.5 billion lines. In this world of changing computer technology, this single piece of equipment continues to perform consistently.

## RECENTLY UPDATED AND PUBLISHED DOCUMENTS

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy):

### Computing and Telecommunications Documents

The *Argonne National Laboratory Computing and Telecommunications Division* (August 1991) is a brochure that provides an overview of the computing services available at Argonne. This brochure supersedes the October 1990 brochure.

The *Central IBM Systems at Argonne National Laboratory* (August 1991) is a brochure that describes the central IBM systems available at Argonne. This brochure supersedes the December 1990 brochure.

*Central VAX Computing at Argonne National Laboratory* (August 1991) is a brochure that describes the central VAX cluster at Argonne. This brochure supersedes the October 1990 brochure.

*Cray Computing at Argonne National Laboratory* (August 1991) is a brochure that describes the Cray UNICOS computing system environment at Argonne. This brochure supersedes the October 1990 brochure.

The *Disaster Recovery Plan for Administrative Systems*, Volume I (ANL/TM 456, Revision 1) is one of three volumes. Only Volume I is printed as a technical memorandum. Volume I describes the organization and responsibilities of the recovery teams and includes procedures for recovery in the event of a disaster. The three volumes of the *Plan* represent a fully workable disaster recovery plan for service disruptions that last more than three days. This revision supersedes the December 1987 printing.

### American National Standards Institute

*American National Standard for Information Systems--Programming Language--C* (ANSI X3.159-1989) specifies the form and establishes the

interpretation of programs expressed in the programming language C. Its purpose is to promote portability, reliability, maintainability, and efficient execution of C language programs on a variety of computing systems. Sections detail the C language itself and the contents of the C-language execution library. Appendixes summarize aspects of both of them and enumerate factors that influence the portability of C programs. This document is intended to guide knowledgeable C-language programmers and implementors of C-language translation systems.

### IBM Documents

The *IBM OS/VS Cobol Compiler and Library Programmer's Guide* (SC28-6483-2) provides necessary information to enable programmers to compile, link-edit, and execute or to compile and load OS/VS Cobol Compiler and Library programs under control of the IBM Operating System. The Cobol language is described in *IBM VS Cobol for OS/VS* (GC26-3857-4), which is a co-requisite of this document. This document supersedes the *IBM OS/VS Cobol Compiler and Library Programmer's Guide* (SC28-6483-1).

The *IBM VS Cobol for OS/VS* (GC26-3857-4) describes IBM OS/VS Cobol. It gives the rules for writing Cobol source programs that are to be compiled by the OS/VS Cobol compiler. Its use is as a reference manual in writing OS/VS Cobol programs and as a supplement to the *IBM OS/VS Cobol Compiler and Library Programmer's Guide* (SC28-6483-2) and the *OS/VS Cobol Language Reference Summary* (GX26-3720). This document supersedes the *IBM VS Cobol for OS/VS* (GC26-3857-3).

### Que Development Group

*Using MS-DOS 5* (0-88022-668-4) offers DOS Version 5 users a source of information to help them organize their work with the PC more effectively, to make their hardware respond more efficiently, and to provide a resource of answers to questions about the capabilities of DOS. This document is written for PC users who need a tutorial reference to DOS.

### University of Chicago Documents

The *University of Chicago Agreements with Personal Computer Vendors* (September 23, 1991) contains the latest lists of personal computer discounts available through the University of Chicago to



Argonne employees for both personal and Laboratory purchases. This revised price list supersedes the price list of August 7, 1991.

## USERS GROUP HIGHLIGHTS

### **MINUTES OF COMPUTER USERS GROUP MEETING HELD SEPTEMBER 3, 1991**

Pat Garner (Reactor Analysis) opened the meeting at 3:04 p.m.

**Status of Floors Assessments.** John Bazzoni (Office of the Chief Financial Officer) reported on the status of floors. It appears that CTD will over recover funds, but the conditions necessary for a refund will not be met. To receive a refund, CTD must over recover, and part of the over recovery must be as a result of assessments. Then an Associate Laboratory Director (ALD) who meets the floor requirements and has paid an assessment will be entitled to a rebate of the assessment. The main reason for the over recovery is CTD's reduced costs compared to the budgeted amounts.

**IBM 6000 Model 550 Available for User Testing.** John Volmer (Computing and Telecommunications) reported that the IBM RS6000 Model 550 will be available for user testing until October 15, 1991. (IBM has extended the trial period until November 15, 1991.) The system has 128 megabytes of memory, 1.6 gigabytes of disk space, a Fortran compiler, and a Unix operating system with an X Window environment. The cost of the system will be approximately \$68,000. (See "IBM RISC System/6000 Model 550 User Experiences" in the October 1991 *Newsletter*.)

**Elimination of Tymnet and MILnet Connections.** Bob McMahon (Computing and Telecommunications) reported on the elimination of the Tymnet and MILnet connections, because of decreases in usage. ESnet connections allow Argonne users to access MILnet sites. CTD has notified the Tymnet registered users of the discontinuation of both systems. (See "Tymnet Discontinued September 30, 1991" in the October 1991 *Newsletter* and "MILnet Services through Federal Interexchange" in this *Newsletter*.)

**Report on the COLLECT Meeting.** Barry Finkel (Computing and Telecommunications) reported on the COLLECT meeting held in Chicago. COLLECT is the On-Line Business Systems (OBS) User Group. At the end of 1990, the Affiliated Computer Systems (ACS) bought OBS. The OBS products are Wylbur and EXCELLINK. This merger delayed the release of Wylbur 9.0. Release 9.0 is a major rewrite/restructuring of the code with enhancements for Multiple Virtual Storage/Enterprise System Architecture (MVS/ESA) and Systems Management Storage. Argonne is running Release 7.0.

**Considerations for Changing Cray I/O Charging.** Doug Engert (Computing and Telecommunications) discussed possible changes to the Cray input/output (I/O) charging methods to encourage better buffering and utilization of I/O, to provide a more equitable rationale, to live up to the advertised rate schedule, and to respond to user requests. CTD is developing several methods to help users assess their code I/O performance. (See "Cray I/O Charging Method Revised" in the October 1991 *Newsletter*.)

The CUG meeting adjourned at 4:10 p.m.

Ken Miles, CUG Secretary

### **MINUTES OF COMPUTER USERS GROUP MEETING HELD OCTOBER 1, 1991**

Pat Garner (Reactor Analysis) opened the meeting at 3:04 p.m.

**Color Viewgraphs and Prints.** Pete Bertoncini (Computing and Telecommunications) presented some initial samples of the output from a color PostScript printer. The output is available on paper or color viewgraphs at 300 dots per inch with a printable area of 8.2 by 10.7 inches (considerably larger than previously available). The printer is not yet available for production work. Charges are still being determined. Printer queues will be set up on ANLCV1 for both the paper and viewgraph output.

**CTD Budget Plans for FY1992.** Mike Boxberger (Computing and Telecommunications) reported that the CTD budget is not finalized and is working its way through the various levels of management. There is still two months left on the Cray lease, but floors have been removed for the new fis-

cal year. CTD has proposed that Laboratory indirect funds will pay about \$1.8 million of the \$8.3 million total cost for central computing in FY1992. In the absence of such Laboratory indirect funding, there will be a need for about a 20 percent increase in rates.

**UNICOS 6.1 Features and Implementation Plans.** Joe Midlock (Computing and Telecommunications) reported that the upgrade to UNICOS 6.1.4 from 6.0.12 will take place on October 14, 1991. (See "Schedule for UNICOS 6.1" in the October 1991 *Newsletter*.)

**Experiences with the IBM RS6000 Model 550.** Dave Leibfritz (Computing and Telecommunications) introduced three scientific users who were able to carry out comparisons with other systems. There have been about 15 users of the system. The results indicated that the system is extremely fast for scalar calculations, sometimes outperforming the Cray. For codes that vectorize well, the Cray continues to outperform the RS6000. (See "IBM RISC System/6000 Model 550 User Experiences" in the October 1991 *Newsletter*.)

**Network Operations Center.** Gary Schlesselman (Computing and Telecommunications) reported on the progress and training of operators to run the new Network Operations Center (NOC). There is new equipment but no new personnel. In the future, CTD hopes to add a "trouble ticket" system to log and document difficulties automatically. (See "Network Trouble? Call the Network Operations Center" in the October 1991 *Newsletter*.)

In response to questions about the saturation level of the Private Branch Exchange (PBX) System, Larry Amiot (Computing and Telecommunications) said the PBX is running at maximum capacity on some interfaces, and CTD is working to balance the load. However, increased productivity would not be available until the installation of more Fiber Distributed Data Interface (FDDI) networks.

The CUG meeting adjourned at 4:15 p.m.

Ken Miles, CUG Secretary

#### **MINUTES OF MACINTOSH USERS GROUP MEETING HELD OCTOBER 16, 1991**

Bob Kampwirth (Materials Science) opened the meeting at 11:02 a.m.

The Apple Computer people were not able to attend this meeting and make their presentation on the new product releases. Instead, general topics of interest to Apple Macintosh users at Argonne were discussed.

David Lifka (Computing and Telecommunications) has obtained the sitewide license for System 7. The plan is to switch to System 7 on November 4, 1991 (see "Laboratory Mac Users Set Date for Conversion to System 7" in this *Newsletter*). System 7 is now available via Public Volume on the AppleShare network. The details for accessing this network are in the September 11, 1991, minutes in the October 1991 *Newsletter*. One needs to download System 7 on eight to ten 800 kilobyte floppy disks. This procedure should be done before November 4, 1991. System 7 is then installed on your Apple Macintosh by using these floppies.

Rodney East (Materials Science) and Barry Miller (Computing and Telecommunications) discussed various aspects of using System 7. Barry will also look into making System 6.0.7 available on Public Volume. System 6.0.7 is the only non-System 7 system that Apple Computer will maintain. It also has the TrueType fonts developed by Apple. People who stick with System 6 should still install the new System 7 printer files and background file using the System 7 installer. Most applications will run under System 7. Switch over and try them out before upgrading your software. Known difficulties are (1) Gatekeeper Aid--throw it away, (2) Kolor--throw it away, (3) Smart Alarms, and (4) Speed Disk 1.1. People are asked not to turn on the shared volume resource unless they really need it. Otherwise, the list of shared volumes gets very long. HyperCard 2.1, MacTCP 1.0.2, and Kermit 4.402 are the versions of this software needed for System 7.

Also, Microsoft Word 4.00D is the best version to use with System 7. It also does a better job than previous versions of translating a Word document to a WordPerfect document. The Apple Macintosh Plus with 4 megabytes of random-access memory (RAM) was reported to be slow but usable with System 7. Barry Miller will get a copy of the init called "MODE32" and put it on Public Volume. It



was released by Apple Computer as freeware. It gives the Apple Macintosh II, IIfx, IIfx, and SE 30 standard System 7 32-bit addressing if they have the Paged Memory Management Unit (PMMU). The Apple Macintosh LC, IIfx, IIfx, and IIfx already have this feature.

Bob Kampwirth (Materials Science) announced that he is testing a new Reduced Instruction Set Computing (RISC)-based laser printer with 3 megabytes of RAM, Microtek TrueLaser MTP-306. He passed out copies of its output. The printer is fast and inexpensive, \$1,395 through December 30, 1991. Bob did report that he has had some difficulties with using it on networks. See him if you want to look at this PostScript-clone laser printer for Apple Macintosh computers.

Lee Wagar (Media Services) discussed the continuing upgrading of Media Services capabilities to handle various Apple Macintosh graphics needs. They can now output 35mm color slides from various formats (including PICT, PICT2, and PostScript). A scanner for color photos is now available. The department intends to acquire a networked PostScript duplicator. A duplicator is a LaserWriter and heavy-duty copier rolled into one. Each copy out of the machine is an original, just like every copy out of a LaserWriter is an original. It reads PostScript files like a LaserWriter, rather than requiring a paper original like a copier. Large, fast industrial-strength copiers are generally called duplicators. Output typically ranges from 60 to 130 copies per minute. The version to be tested would have a queue on the central VAX cluster, like the queues for the Media Services color PostScript printer and Linotype Imagesetter. This queue will allow people with any link to Internet to send their reports directly to the duplicator in PostScript form. They can make as many copies as they want. The duplicator has its own front-end that compiles the PostScript code, which is one of the things that allows it to achieve such fast print rates. Media Services (formerly Graphic Arts) is looking for customers to run this duplicator into the ground so that they can give it a good test. For details, call Lee at extension 2-5603.

Barry Miller is drafting guidelines and restrictions for placing files on Public Volume. An ANL Macintosh Users Group Committee reviews files before they are posted. The committee members are Carol Rosignolo (Environmental Assessment and Information Sciences) and Kevin Bailey (Materials Science). Barry also reported that a possible site-

wide license is being explored for QuickMail 2.5. Rodney East says that this version of QuickMail is compatible with System 7.

In November 1991, the meeting will be the third Wednesday of the month. If people are available, Apple Computer will make a special presentation of their new computers. Otherwise, this meeting will probably feature a demonstration of FrameMaker (sometimes called the ultimate Macintosh Word processor) and a review of MacX (X Windows for the Apple Macintosh). The December 1991 meeting, which will return to the second Wednesday of the month, will feature a demonstration of two Apple Macintosh spreadsheets, Claris Resolve and Microsoft Excel 3.0.

The Apple Macintosh Users Group normally meets the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee Wagar (Media Services), Jim Lewellen (Computing and Telecommunications), or Ralph Leonard (Chemical Technology) for further meeting information. Lee Wagar sends out the meeting announcement via QuickMail or E-mail, when possible, and via paper to those who have no electronic mail capabilities. If you have an electronic mail address and are not receiving an electronic meeting announcement, contact Lee Wagar at extension 2-5603 or via QuickMail.

The meeting adjourned at 12:15 p.m.

Ralph Leonard, Macintosh Users Group Secretary

# WORKLOAD STATISTICS (AUGUST 30 THROUGH SEPTEMBER 30, 1991)

## NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	END OF MONTH	ACTIVE DURING MONTH
CMS	1,225	1,243	422
Wylbur	1,677	1,657	304
MVS TSO	57	57	24
CICS	2,332	2,315	182
MVS Batch	2,332	2,315	621
VAX/VMS	698	688	258
Cray	368	358	125
All Systems	2,332	2,315	979

## INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				SESSION TIME (HRS)	CPU TIME (HRS)
	PRIME	NIGHT	WEEKEND	TOTAL		
<b>INTERACTIVE</b>						
CMS	10,778	2,319	2,054	15,151	41,704.2	95.21
Wylbur	5,561	300	315	6,176	6,306.3	5.30
MVS TSO	1,238	13	4	1,255	1,363.3	4.54
CICS	*	*	*	*	*	*
VAX/VMS	5,244	515	375	6,134	25,515.8	277.42
Cray	1,364	321	256	1,941	1,223.7	578.34
<b>IBM BATCH</b>						
Class U	9,531	1,859	1,331	12,721	**	25.04
Class W	13,621	1,946	869	16,436	**	95.54
Class X	4	645	7	656	**	20.01
Class Y	0	0	1,735	1,735	**	16.23
Nonmain	17,974	1,608	1,331	20,913	**	0.00
Total	41,130	6,058	5,273	52,461	**	156.82
<b>CRAY BATCH</b>						
u	1,364	321	256	1,941	**	41.05
w	4,461	291	371	5,123	**	93.32
x	1,223	568	341	2,132	**	249.44
y	404	280	363	1,047	**	148.08
Total	7,452	1,460	1,331	10,243	**	531.89
<b>VMS BATCH</b>						
W BATCH	399	291	279	969	**	84.60
X BATCH	2	18	6	26	**	91.61
Y BATCH	0	0	19	19	**	20.42
Total	401	309	304	1,014	**	196.63

## INPUT/OUTPUT

Lines Printed	56,817,883
Local	52,663,057
Remote	41,859,562
Fiche	6,179
Tape Mounts	4,855
Microfiche Developed	987,096
Microfiche Frames Developed	

## GRAPHICS

	# OF JOBS	# OF FRAMES
CalComp Jobs	110	*
Matrix 35mm Color	48	107
Matrix-8 x 10	4	4
Matrix-Negative	0	0

## DATA MANAGEMENT

Total Tapes Stored	24,623
Round Tapes Saved	52
Round Tapes Released	81
Cartridges Saved	1,111
Cartridges Released	767
Datasets Exported to Tape	2,459
Datasets Imported from Tape	462

\* not available

\*\* not applicable



AVAILABILITY STATISTICS, BY MACHINE (AUGUST 30 THROUGH SEPTEMBER 30, 1991)

	Monthly Totals	Hardware	Scheduled Software	Other	Hardware	Unscheduled Software	Other
CMS							
All Shifts							
Interruptions	4.00	2.00	2.00	0.00	0.00	0.00	0.00
Hrs Unavailable	4.53	3.03	1.50	0.00	0.00	0.00	0.00
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
MYLBUR							
All Shifts							
Interruptions	8.00	2.00	5.00	0.00	1.00	0.00	0.00
Hrs Unavailable	5.38	2.26	2.03	0.00	1.08	0.00	0.00
MTF/Unscheduled	738.61				738.61		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Hrs Unavailable	1.08	0.00	0.00	0.00	1.08	0.00	0.00
MTF/Unscheduled	250.91				250.91		
MVS TSO							
All Shifts							
Interruptions	7.00	2.00	5.00	0.00	0.00	0.00	0.00
Hrs Unavailable	4.35	2.26	2.08	0.00	0.00	0.00	0.00
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
JES3							
All Shifts							
Interruptions	4.00	2.00	2.00	0.00	0.00	0.00	0.00
Hrs Unavailable	2.91	2.18	0.73	0.00	0.00	0.00	0.00
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
CICS							
All Shifts							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
VAX/VMS (VAX 8700)							
All Shifts							
Interruptions	3.00	1.00	1.00	0.00	1.00	0.00	0.00
Hrs Unavailable	2.53	0.56	1.66	0.00	0.30	0.00	0.00
MTF/Unscheduled	741.46				741.46		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Hrs Unavailable	0.30	0.00	0.00	0.00	0.30	0.00	0.00
MTF/Unscheduled	251.70				251.70		
VAX/VMS (VAX 6410)							
All Shifts							
Interruptions	1.00	0.00	1.00	0.00	0.00	0.00	0.00
Hrs Unavailable	1.58	0.00	1.58	0.00	0.00	0.00	0.00
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
CRAY							
All Shifts							
Interruptions	8.00	4.00	0.00	0.00	4.00	0.00	0.00
Hrs Unavailable	20.08	13.50	0.00	0.00	6.58	0.00	0.00
MTF/Unscheduled	180.97				180.97		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	3.00	0.00	0.00	0.00	3.00	0.00	0.00
Hrs Unavailable	5.80	0.00	0.00	0.00	5.80	0.00	0.00
MTF/Unscheduled	82.06				82.06		

COMPUTING CENTER USE IN DOLLARS BY COST CENTER (AUGUST 30 THROUGH SEPTEMBER 30, 1991)

CC	CCHNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
ADVANCED PHOTON SOURCE							
130	ADVANCED PHOTON SOURCE DIV	\$210	\$315	\$0	\$323	\$102	\$950
272	ADVANCED PHOTON SOURCE	\$188	\$0	\$0	\$169	\$91	\$448
340	APS DIVISION MANAGEMENT	\$17	\$0	\$0	\$0	\$63	\$80
341	APS ACCELERATOR PHYSICS	\$271	\$8,125	\$0	\$118	\$83	\$8,598
342	APS DIAGNOSTICS	\$4	\$17	\$0	\$0	\$13	\$34
343	APS LINAC	\$0	\$238	\$0	\$11	\$0	\$248
344	APS RF	\$3	\$44	\$0	\$11	\$146	\$205
345	APS VACUUM	\$10	\$5,800	\$0	\$104	\$2,882	\$8,796
346	APS MECHANICAL ENGINEERING	\$0	\$2	\$0	\$0	\$40	\$43
347	APS CONTROLS	\$49	\$1	\$0	\$0	\$8	\$57
348	APS MAGNETS	\$62	\$3	\$0	\$0	\$1	\$66
349	APS POWER SUPPLIES	\$30	\$0	\$0	\$0	\$0	\$31
350	APS DIVISION MANAGEMENT	\$13	\$0	\$0	\$0	\$14	\$27
351	APS INSERTION DEVICES	\$52	\$0	\$0	\$0	\$234	\$353
352	APS BEAM LINE FRONT ENDS	\$32	\$5,927	\$0	\$139	\$4,869	\$10,967
353	APS BEAM LINE INSTRUMENTATION	\$24	\$271	\$0	\$33	\$106	\$433
360	APS CONVENTIONAL FACILITIES	\$16	\$0	\$0	\$26	\$0	\$42
361	APS PROJECT DIRECTION	\$33	\$0	\$0	\$0	\$31	\$64
362	APS MANAGEMENT GENERAL	\$18	\$1	\$0	\$1	\$32	\$52
SUBTOTAL		\$1,031	\$20,806	\$0	\$940	\$8,717	\$31,495
ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH							
110	BIO & MED RES DIV	\$1,500	\$748	\$95	\$1,111	\$1,333	\$4,787
125	TECHNOLOGY TRANSFER CENTER	\$71	\$1	\$0	\$1	\$114	\$187
149	ENVIRONMENTAL RESEARCH DIV	\$1,737	\$1,430	\$154	\$1,444	\$750	\$5,515
155	ENERGY SYSTEMS DIVISION	\$2,305	\$4,125	\$8,973	\$1,064	\$745	\$17,211
165	ENV ASSESS & INFO SCI DIV	\$9,189	\$4,950	\$66,868	\$805	\$3,981	\$85,193
174	ENER/ENV/BIO PROG DIR	\$11	\$0	\$0	\$0	\$102	\$112
246	ES-NAT'L ENERGY SOFTWARE CTR	\$73	\$0	\$54	\$638	\$364	\$1,128
274	ENER/ENV/BIO RES PROG ADM	\$101	\$0	\$0	\$9	\$251	\$361
SUBTOTAL		\$14,986	\$11,253	\$76,144	\$5,071	\$7,038	\$114,492
ENGINEERING RESEARCH							
102	EBR-II PROJECT-ANL WEST	\$2,354	\$13	\$438	\$2,181	\$117	\$5,103
104	FUELS AND PROCESSES	\$1,590	\$127	\$39	\$680	\$253	\$2,689
107	CHEMICAL TECHNOLOGY DIVISION	\$749	\$450	\$0	\$737	\$530	\$2,466
112	REACTOR ENGINEERING	\$5,585	\$860	\$5,908	\$2,447	\$2,441	\$17,240
114	MATLS & COMP TECH DIV	\$5,469	\$4,379	\$1,011	\$2,561	\$2,000	\$15,420
115	ENGINEERING PHYSICS DIVISION	\$3,321	\$993	\$4,400	\$1,655	\$1,499	\$11,868
116	REACTOR ANALYSIS	\$26,847	\$9,007	\$61,289	\$13,201	\$10,451	\$120,794
117	APPLIED PHYSICS-ANL WEST	\$6,351	\$240	\$13,335	\$347	\$384	\$20,656
118	REACTOR EXP & EXAM DIV	\$3,075	\$3,487	\$4	\$226	\$384	\$7,176
171	ENGRG RES PROG DIR	\$4	\$1	\$0	\$0	\$106	\$111
197	SPECIAL PROJECTS OFFICE	\$319	\$2	\$0	\$21	\$171	\$572
211	ENGINEERING PHYSICS DIVISION	\$67	\$12	\$0	\$26	\$3,071	\$3,177
269	CHEM TECH DIV-ANALYTICAL CHEM	\$105	\$5	\$0	\$7	\$111	\$229
271	ENGRG RES PROG ADMIN	\$247	\$0	\$0	\$24	\$379	\$649
SUBTOTAL		\$56,142	\$19,576	\$86,424	\$24,112	\$21,896	\$208,152
PHYSICAL RESEARCH							
105	MATERIALS SCIENCE DIVISION	\$563	\$14,276	\$26,419	\$2,209	\$650	\$44,117
109	PHYSICS DIV	\$1,500	\$791	\$24	\$1,176	\$385	\$3,876
120	CHEMISTRY DIV	\$1,463	\$3,119	\$33,412	\$691	\$1,135	\$39,820
136	INT PULSE NEUT SOURCE PROG	\$148	\$1,431	\$2,335	\$445	\$388	\$4,747
137	HIGH ENERGY PHYSICS DIV	\$478	\$1,446	\$2,182	\$801	\$1,042	\$5,949
139	DIV OF EDUCATIONAL PROGRAMS	\$780	\$1	\$0	\$105	\$218	\$1,104
145	MATHEMATICS & COMPUTER SCI DIV	\$103	\$91	\$1,390	\$1,249	\$4,595	\$7,428
146	CTD DIV - SCI APPL & RES	\$94	\$3	\$245	\$112	\$159	\$613
273	PHYSICAL RESEARCH PROGRAM ADMIN	\$50	\$10	\$0	\$50	\$118	\$227
SUBTOTAL		\$5,179	\$21,169	\$66,007	\$6,837	\$8,689	\$107,882
EXTERNAL							
751	FERMI NATIONAL LABORATORY	\$657	\$0	\$0	\$1,005	\$557	\$2,219
752	NAVY	\$9,853	\$0	\$0	\$1,370	\$4,689	\$15,911
753	MORGANTOWN ENERGY TECH CENTER	\$13	\$0	\$0	\$0	\$0	\$13
754	DEPARTMENT OF ENERGY AT ANL	\$0	\$3	\$0	\$9	\$26	\$38
760	ABBOTT LABORATORIES	\$3	\$1	\$51	\$0	\$0	\$54
763	GENERAL ELECTRIC COMPANY	\$0	\$0	\$0	\$0	\$0	\$0
766	BECHTEL NATIONAL, INC.	\$0	\$238	\$5,588	\$29	\$1	\$5,855
775	SMITHSONIAN	\$0	\$0	\$0	\$0	\$4	\$4
777	UNIVERSITY OF CHICAGO AT ANL	\$17	\$0	\$0	\$151	\$0	\$168
778	ARGONNE CREDIT UNION	\$6	\$0	\$0	\$0	\$0	\$6
779	UNIVERSITY OF ILLINOIS AT CHICAGO	\$6	\$0	\$0	\$0	\$0	\$6
780	NEW BRUNSWICK LABORATORY	\$13	\$0	\$0	\$0	\$0	\$13
781	STATE OF ILL. DEPT. MENTAL HEALTH	\$0	\$0	\$0	\$0	\$9	\$9
782	PACKER ENGINEERING	\$3	\$65	\$0	\$2	\$0	\$71
783	WEST VALLEY NUCLEAR SERVICES CO	\$58	\$0	\$0	\$0	\$0	\$58
784	SUPERCONDUCTING SUPER COLLIDER LABS	\$0	\$54	\$173	\$0	\$0	\$227
787	ILLINOIS INSTITUTE OF TECHNOLOGY	\$2	\$219	\$2,077	\$18	\$35	\$2,350
788	GOVERNOR STATE UNIVERSITY	\$0	\$0	\$0	\$0	\$1,850	\$1,850
789	ILLINOIS MATHEMATICS AND SCIENCE ACADEMY	\$0	\$0	\$0	\$0	\$1,850	\$1,850
SUBTOTAL		\$10,631	\$579	\$7,888	\$2,585	\$9,020	\$30,703



CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
			OPERATIONS				
143	SUPP SERV DIV - ELEC DEPT	\$187	\$3	\$0	\$316	\$380	\$886
148	HUMAN RESOURCES-MEDICAL DEPT	\$2,259	\$0	\$0	\$192	\$424	\$2,875
150	SUPPORT SERV DIV - SPEC MATLS	\$218	\$0	\$0	\$44	\$146	\$408
161	TECH INFO SERVICES DEPT	\$525	\$20,048	\$0	\$2,969	\$1,179	\$24,720
201	OFFICE OF THE DIRECTOR	\$169	\$0	\$0	\$133	\$113	\$416
202	OFC OF CHIEF OPER OFCR	\$15	\$0	\$0	\$108	\$101	\$224
210	SUPP SERV DIV - CENT SHOPS	\$485	\$0	\$0	\$91	\$547	\$1,123
216	SUPPORT SERVICES DIVISION	\$129	\$0	\$0	\$50	\$110	\$290
222	PLANT FAC & SERV-LODGING FAC	\$0	\$0	\$0	\$0	\$100	\$100
232	SUPPORT SERV DIV - SECURITY	\$293	\$0	\$0	\$0	\$176	\$469
234	SUPP SERV DIV-HEALTH PHY	\$245	\$305	\$0	\$568	\$268	\$1,386
235	SUPP SERV DIV-ENV SAFE HEALTH	\$994	\$35	\$0	\$208	\$464	\$1,701
236	SUPPORT SERV DIV - FIRE DEPT	\$5	\$0	\$0	\$0	\$101	\$106
245	COMPUTING AND TELECOM DIV	\$34,544	\$0	\$0	\$5,341	\$4,175	\$44,060
247	COMP & TEL DIV - COM SERV	\$4,745	\$0	\$0	\$490	\$1,582	\$6,817
260	SUPP SERV DIV-GRAPHIC ARTS	\$379	\$698	\$0	\$64	\$358	\$1,499
265	ELECTRONIC PUBLISHING SERVICE	\$19	\$12	\$0	\$13	\$0	\$44
275	OFFICE OF PUBLIC AFFAIRS	\$630	\$0	\$0	\$80	\$142	\$851
276	OFC PUB AF - MOTH PIC UNIT	\$39	\$0	\$0	\$0	\$19	\$58
296	TELECOM COST/RECOVERY	\$0	\$0	\$0	\$65	\$0	\$65
315	SUPP SERV DIV-MATLS & SERV	\$4,374	\$4	\$0	\$1,104	\$560	\$6,042
316	PLANT FAC & SERV-VEH MAINT	\$0	\$0	\$0	\$0	\$173	\$173
317	PLANT FAC & SERV-DRIV&RIG SERV	\$20	\$0	\$0	\$3	\$100	\$123
319	SUPP SERV DIV-TRAVEL OFC	\$1	\$0	\$0	\$8	\$100	\$110
322	SUPP SERV DIV-PROCUREMENT	\$40	\$0	\$0	\$0	\$103	\$144
333	QA, ENVIR & SAFETY OFC	\$163	\$8	\$0	\$45	\$420	\$636
336	SUPP SERV DIV - INSPECTION	\$11	\$2	\$0	\$0	\$2	\$15
400	OFC OF CHIEF FIN OFFICER	\$55,474	\$0	\$0	\$3,500	\$-10,855	\$48,119
401	ACCOUNTING	\$0	\$0	\$0	\$53	\$100	\$153
402	OFC CHIEF FIN OFCR-DATA ENTRY	\$10	\$0	\$0	\$0	\$-450	\$-440
403	BUDGET OFFICE	\$0	\$0	\$0	\$0	\$100	\$100
410	HUMAN RESOURCES DEPARTMENT	\$24,866	\$0	\$0	\$1,856	\$2,834	\$29,556
412	AFFIRM ACTION PROGRAM	\$57	\$0	\$0	\$45	\$101	\$203
501	PLANT FAC & SERV-BLDG MAINT	\$32	\$0	\$0	\$45	\$197	\$274
502	PLANT FAC & SERV-INSTALLATIONS	\$19	\$0	\$0	\$2	\$100	\$121
503	PLANT FAC & SERV-FOUNDATIONS	\$0	\$0	\$0	\$0	\$100	\$100
504	PLANT FAC & SERV-CUSTODIAL	\$3	\$0	\$0	\$0	\$100	\$103
505	PLANT FAC & SERV-WASTE MGMT OP	\$56	\$0	\$0	\$90	\$100	\$245
506	PLANT FAC & SERV-PLANT MGR OFC	\$401	\$0	\$0	\$42	\$337	\$780
510	PLANT FAC & SERV-UTILITY SYST	\$0	\$0	\$0	\$0	\$100	\$100
512	PLANT FAC & SERV-FAC PLNG/ENG	\$1,136	\$0	\$0	\$109	\$201	\$1,446
530	SITE MGRS OFC-ANL WEST	\$107	\$2	\$0	\$3	\$103	\$215
531	PERSONNEL-ANL WEST	\$176	\$0	\$0	\$134	\$100	\$410
532	SPECIAL MATLS-ANL WEST	\$875	\$4	\$0	\$211	\$284	\$1,374
533	ACCOUNTING-ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
534	PURCHASING-ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
535	SECURITY - ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
536	SAFETY STAFF-ANL WEST	\$25	\$0	\$0	\$0	\$103	\$128
537	INFORMATION SERVICE-ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
538	MATLS HANDLING-ANL WEST	\$80	\$0	\$0	\$6	\$100	\$187
548	ANL WEST GENERAL EXPENSE	\$97	\$0	\$0	\$44	\$0	\$141
550	COMPUTER APPL & SERV - ANL-W	\$110	\$1	\$0	\$8	\$102	\$221
554	MACHINE SHOP-ANL WEST	\$36	\$0	\$0	\$4	\$100	\$140
556	SITE ENGRG-ANL WEST	\$103	\$0	\$0	\$12	\$100	\$215
557	PLANT SERVICES-AW-SERVICE REQ	\$48	\$3	\$0	\$5	\$100	\$155
558	PLANT SERVICES-AW-FUNCTION	\$3	\$0	\$0	\$0	\$0	\$3
561	OFC OF QUALITY ASSURANCE - AW	\$3	\$0	\$0	\$0	\$101	\$104
	SUBTOTAL	\$134,204	\$21,127	\$0	\$18,064	\$6,499	\$179,894
	TOTAL	\$222,174	\$94,509	\$236,464	\$57,610	\$61,861	\$672,618

## COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	Onsite (Illinois)	Onsite (Idaho)	Offsite (Area Code 708)
Network Operations Center	2-5421	8-972-5421	972-5421
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	n.a.	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		
<b>CICS, CMS, Wylbur, and TSO Interactive Computing Services</b>			
IBM 3270 Protocol Converter			
1200 to 19.2K Bits Per Second (Onsite)	2-3270	n.a.	
1200 to 2400 Bits Per Second (Offsite)			972-3270
9600 to 19.2K Bits Per Second (Offsite)			972-3219
X.25 Terminal Multiplexor			
300 to 19.2K Bits Per Second(Onsite)	2-2525	n.a.	
1200 to 2400 Bits Per Second (Offsite)			972-2525
9600 to 19.2K Bits Per Second (Offsite)			972-2519
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	n.a.	972-2212
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	n.a.	972-7612
300 Bits Per Second	2-7603*	n.a.	972-7603*
* When using a 300 bits per second modem, you must use a capital "P" to logon.			
<b>Batch Remote Job Entry Service</b>			
2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573
<b>Central DEC VAX Cluster</b>			
1200 to 19.2K Bits Per Second (Onsite)	2-8700	n.a.	
1200 to 2400 Bits Per Second (Offsite)			972-8700
9600 to 19.2K Bits Per Second (Offsite)			972-8745
<b>Argonne TCP/IP Network</b>			
1200 to 19.2K Bits Per Second (Onsite)	2-5588	n.a.	
1200 to 2400 Bits Per Second (Offsite)			972-5588
9600 to 19.2K Bits Per Second (Offsite)			972-4726
<b>Argonne MFEnet Dial-Up</b>			
300 to 19.2K Bits Per Second	2-7920	n.a.	972-7920

## COMPUTING CENTER SERVICE SCHEDULE

(All Times Are Central Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	VM/XA	VMS	MFEnet Gateway
Monday to Thursday	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

\*\* Except for the interruption of UNICOS from 4:00 a.m. until 8:00 a.m. on Mondays for maintenance, service continues uninterrupted past 4:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 3:00 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 3:00 p.m. before making plans that require the availability of a service the following morning.



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Argonne National Laboratory  
Computing and Telecommunications Division  
November 1991

### COMPUTING CENTER CLASS

The Computing and Telecommunications Division (CTD) is offering one class. There is no charge for attending this class. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the class and notify attendees of any schedule changes. CTD will reschedule or cancel any class with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

### ASYNCHRONOUS DATA COMMUNICATIONS FOR THE PERSONAL COMPUTER

Goals:	To understand and apply basic data communication properties to Laboratory-specific equipment (such as Asynchronous Communication Interfaces [ACIs], Asynchronous Data Interfaces [ADIs], and voice/data lines) by using commercial and public domain communication software for the personal computer.
Length of Class:	One 2-hour session
Date and Time:	November 15, 1991 (Friday), 2:00 p.m. to 4:00 p.m.
Location:	Building 221, Room A-216
Instructor:	James Regula

### COMPUTER-BASED TRAINING COURSES

Currently, CTD offers one computer-based training course in CMS and five courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

#### IBM CBT Course

(Enter SLFTEACH at the CMS prompt.)

Course Name	Course Title
SLFTEACH	Introduction and Advanced Concepts of Xedit

#### DEC CBT Courses on the Central VAX 8700

(Enter RUN "course name" at the DCL level.)

VMSCAI	Introduction to VAX/VMS
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers





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# ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division  
VOLUME 22 NUMBER 12 DECEMBER 1991

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AT URBANA-CHAMPAIGN

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# COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory

Building 221

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The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

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The Division operates a Cray X-MP/18 with UNICOS 6.1.4, a Sun 3/280 gateway, a central VAX cluster (a DEC VAX 8700 and a DEC VAX 6410) with VMS 5.4, an IBM 3084QX9, and three Hewlett-Packard 3000 minicomputers. Software on the IBM computers includes VM/XA SP 2.1 with CMS Release 5.6, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option/Extensions (TSO/E) Release 1.3.0, and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 708-252-5415.

The *Argonne Computing Newsletter* is published monthly by the Computing and Telecommunications Division, Argonne National Laboratory, Argonne, Illinois 60439; edited, prepared, and formatted by April Heiberger and Cliff Caruthers with CMS, Waterloo Script, and the Linotype L300P typesetter. This *Newsletter* was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

## COMPUTING COMMENTS

### **FY1992 COMPUTING RATE STRUCTURE RATE REVISED**

The Computing Policy Committee (CPC) and the Management Council have reviewed and endorsed the FY1992 budget for central computing. Central computing costs for FY1992 will be \$1.5M less than FY1991 to reflect the completion of the Cray lease-to-ownership in December 1991. Additionally, computing floors will not be used in FY1992 to ensure full cost recovery. Laboratory indirect funding for central computing is \$1.7M in FY1992. This funding level is associated with networking and other support activities that are of general benefit to the Laboratory. The CPC recommended that such Laboratory-wide general benefit activities should be funded through the indirect rate as opposed to the central computing rates. The Management Council has also frozen central computing rates at FY1991 levels. The existing rates (December 2, 1991) are attached to this *Newsletter*.

### **EARLY EXPERIENCES ON THE INTEL TOUCHSTONE DELTA SYSTEM**

For the past several months, researchers have been using the Intel Touchstone DELTA System in pre-production mode. Argonne scientists have made initial application runs on problems in global climate modeling, computational biology, computational chemistry, and materials modeling. In addition, several users have been developing software tools.

The DELTA has been up and running since its installation at the California Institute of Technology in May 1991 and has passed all of the acceptance criteria. System software has been updated many times, and the machine is becoming stable. Fortran, C, and the Program Composition Notation (PCN) languages are available. Numerous software tools have been ported to the DELTA, including PCN and the p4 parallel programming library. By using these tools, Argonne researchers have been able to move existing parallel programs to the DELTA with few or no changes to the source code. Many of the programs run on the DELTA have been developed on the iPSC-860 at Argonne.

Benchmarks have demonstrated performance in excess of 10 gigaflops (Gflops). Several applications are attaining an unoptimized performance in the 2-3 Gflops range on initial runs. Work continues on improving the performance of compilers, file systems, and message passing.

For more information, contact Rick Stevens at extension 2-3378.

### **COMPUTING SERVICES DURING CHRISTMAS THROUGH NEW YEAR'S PERIOD**

Beginning at 7:00 a.m. on Saturday, December 21, 1991, and continuing until 7:00 a.m. on Thursday, January 2, 1992, the weekend and holiday computing rates will be in effect. Except for a 24-hour period between 4:30 p.m. on December 24 and 4:30 p.m. on December 25 and another 24-hour period between 4:30 p.m. on December 31 and 4:30 p.m. on January 1 (when no operator is present), users can expect service equivalent to regular weekends when a single operator is available to respond to tape mount requests, to distribute printed output, to assist users, and to restart failed systems.

From 4:30 p.m. on December 24 until 4:30 p.m. on December 25 and again from 4:30 p.m. on December 31 until 4:30 p.m. on January 1, Building 221 will be locked. Users who need access to retrieve output during this time will need to get a key from the guard post at the Northgate Road entrance.

Users with special requirements for computing services during this period should call the User Services consultants at extension 2-5405 as soon as possible to allow time to arrange for these needs.

### **COMPUTING CLASSES SCHEDULED FOR JANUARY 1992**

During January 1992, CTD will offer eight classes. The schedule is appended to this *Newsletter*. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of classes and notify attendees of any schedule changes. CTD will reschedule or cancel classes with fewer than six registrants *one week* prior to the scheduled date of the class.



*Introduction to Computing Facilities and Services* (one 3-hour session) provides an overview of the computing facilities and services available at Argonne. New Argonne computer users, as well as anyone else interested in computing at Argonne, should attend this class.

*Introduction to VAX/VMS* (one 3-hour session) is for first-time VAX/VMS users who need an overview of the features available in VAX/VMS. Attendees will become familiar with available VMS documentation and will learn how to logon to VMS, to create files, to set up sub-directories, to compile and link programs, to submit batch jobs, and to use the online HELP facilities. Also, attendees will learn how to access the companion computer-based instruction courses, "Introduction to VAX/VMS" and "Introduction to the Extensible VAX Editor." Everyone registering for this class should request an account on the CTD VAX cluster before attending the class to access the computer-based instruction courses. To request an account, call Account Services at extension 2-5425.

*Introduction to Unix* (three 3-hour lectures with three 1-hour labs) is an overview of the Unix operating system. Scientific computing users will need some familiarity with Unix to use the Cray X-MP, new scientific workstations, and future advanced architecture computers. Attendees will become familiar with using the file system; changing file permissions; using the vi editor; using mail; configuring the user environment; creating, compiling, and executing programs; using job and process control; using the Transmission Control Protocol/Internet Protocol (TCP/IP); using good computer protection practices; and using many useful commands. CTD will establish temporary accounts on the CTD Sun Unix server for attendees for the duration of the class. The class will entail the use of Unix from ASCII terminals to reinforce the lecture content.

*Programming in VAX/VMS* (one 3-hour session) acquaints VMS users with features of VMS. Topics include programming VAX Fortran; writing DCL (Digital Command Language) procedures; using the VMS system debugger, the runtime library, and system services; and reviewing VMS internals.

*Introduction to UNICOS* (one 3-hour session) is for new users who want basic information on UNICOS on the Cray X-MP/18 high-performance computer. The class will review material covered in the *Introduction to Unix* class and will cover shell programming, Network Queuing System (NQS) job

submission, and management of Cray files from the IBM MVS front-end station or from scientific workstations via Transmission Control Protocol/Internet Protocol (TCP/IP).

*Introduction to Wylbur for MVS Batch Computing* (one 3-hour lecture with lab) explains how to use Wylbur, an efficient easy-to-learn interactive editing system ideally suited for users of the IBM MVS batch computing system. You can use Wylbur interactively to create and modify programs, data, and text; to submit IBM MVS and Cray UNICOS batch jobs; and to review IBM MVS and Cray UNICOS batch output.

*Using CMS with IBM 3270-Compatible Display Terminals* (two 3-hour lectures with labs) is for CMS users of IBM 3270-compatible display terminals, IBM or Apple Macintosh personal computers with NCSA tn3270, or ASCII terminals with the Hydra Protocol Converter. This class is for people who send or receive electronic mail; who organize information in files and obtain information from files; who create and modify data, programs, or text files; or who use applications packages such as Cuechart, SAS, Script, and Tellagraf. The labs use ASCII terminals with the Hydra Protocol Converter, but the principles learned will apply to all the terminals and access methods mentioned above. Everyone registering for the CMS class must have a CMS account before attending the class. To request an account, contact Account Services (Building 221, Room A-147, extension 2-5425).

*Using SAS* (two 3-hour sessions) includes examples of Statistical Analysis System (SAS) programs in CMS, although you can use the same SAS code in the MVS batch, VAX/VMS, and IBM PC systems. SAS is a powerful, easy-to-use computer system for data analysis. In addition to statistical analysis, SAS provides tools for information storage and retrieval, data modification and programming, report writing, and file handling. Some knowledge of CMS, MVS, VAX/VMS, or an IBM PC is necessary.

## CMS NEWS

### **PL/1 1.5.1 MAINTENANCE LEVEL 515 AVAILABLE FOR TESTING IN CMS**

PL/1 1.5.1 maintenance level 515 is a simple maintenance update of PL/1 1.5.1. There are no new features or enhancements. However, certain programs that would not compile under maintenance level 506 will now compile properly. The PL/1 Resident and Transient Libraries have also been rebuilt with the new maintenance.

The new PL/1 1.5.1 Compiler is available for testing by entering:

**PLITEST**

This command links to the PLIOPT 2 minidisk and invokes the compiler. To test the PL/1 Resident and Transient Libraries, the PLIOPT 2 minidisk must be linked before the PL/1 program executes.

If there are no difficulties, we will place the updated PL/1 in production status on January 6, 1992.

## GRAPHICS NEWS

### **NCD17C COLOR X WINDOW TERMINAL AVAILABLE**

CTD has installed a NCD17c color X Window terminal in the Workstation Evaluation and Demonstration Room (A-142). You can use this X terminal to display client applications that are started remotely from other machines and that provide X Window capabilities (such as Sun workstations, the Cray X-MP/18, the central VAX cluster, and most Unix systems). Access to the ANLVM CMS in line mode is available directly from the X terminal, and full screen capabilities are provided by initiating tn3270 from some other remote terminal session. The NCD X Window server and the NCD window manager are running locally on this X terminal. The NCD xtelnet client provides an interface for logging into your own machine. Enter the Internet Protocol (IP) address (name or number) of the machine where your client applications reside. Logon to your machine and set the DISPLAY environment variable to point to this NCD X terminal.

To define this environment variable in the C shell, enter:

```
setenv DISPLAY cassius.ctd.anl.gov:0
```

To define this environment variable in the Bourne or Korn shells, enter:

```
DISPLAY=cassius.ctd.anl.gov:0  
export DISPLAY
```

Now any X clients that are executed from your machine will display on this NCD X terminal. To bring up more windows on the X terminal, start additional xterm clients from your machine. Documentation from NCD about this X terminal is next to the terminal. If you have any questions or difficulties, contact Dave Leibfritz at extension 2-6596.

## MANAGEMENT INFORMATION SYSTEMS

### **ADPO PROJECT MILESTONES COMPLETED**

During FY1991, several projects funded by the Administrative Data Processing Oversight (ADPO) Committee reached completion or major milestones. The projects were in the areas of human resources, financial systems, and materials and plant systems.

#### **Human Resources Projects**

Three Human Resource Systems (HRS) projects in FY1991 were the HRS Replacement Project Phase II, the Applicant Information System (AIS) Project, and the Human Resource Business Systems Enhancement Project. A joint HR and Environment, Safety and Health (ESH) Training Management System was the fourth project in this area in FY1991.

The HRS Replacement Project Phase II completes the replacement of the current HRS System developed in 1978. The new system will be implemented in the first quarter of FY1992 and will use the Customer Information Control System (CICS) to provide online Laboratory-wide access to the production Personnel databases, online submission of more than 40 standard reports, and direct updating of certain employee information by division offices.

One project component developed a comprehensive security sub-system that will be incorporated



into other Human Resource Management Systems (HRMS) applications that allow Laboratory-wide access. Another component implemented the same architecture as that of the financial systems to provide Laboratory users with the same "look and feel" for any application, whether it is a financial or human resource application. Finally, the project established the Information Expert (IE) environment to be used by all future HRMS applications.

AIS is a replacement for the current Applicant Flow System that was implemented in 1979. The current system operates in CMS via the Inquire Database Management System. The new system operates in the same computing environment as all the other HRMS applications developed since 1983 and relies heavily on existing HRMS functional components. The system processes applicant and personnel requisition information with plans for Laboratory-wide access in the third quarter of FY1992. The system will be implemented for HR use in the first quarter of this fiscal year.

The Human Resource Business Systems Enhancement Project uses the mainframe HRMS systems and the HR local area network to take full advantage of the computing and data resources available to HR staff. In addition to improving the functionality of existing hardware and software, the project also identified, evaluated, and in some instances acquired new technologies for HR use. Several FY1992 ADPO proposals were an outgrowth of activities associated with the project.

The first phase of the Training Management System (TMS) operating on ESH personal computers was developed and implemented in late FY1991. The system captures and reports ESH-related training data for ANL employees as well as for non-Argonne staff working onsite, maintains course catalog information, and uses a questionnaire to determine certain training needs.

Argonne Information Management (AIM) was a multi-year development and acquisition project to provide the Laboratory with an online library system capability. The system has several major components and sub-systems that include Laboratory-wide access to an online library database and a current contents database. The system was implemented in January 1991 for both Technical Information Services (TIS) and Laboratory use.

## Financial Systems Projects

During FY1991 the efforts of the Integrated Financial System (IFS) project team were concentrated in three areas: (1) improving the integration of the Budget systems and IFS, (2) improving the IE user environment, and (3) developing an automated Electronic Effort system for scientific effort. In the Budget systems area, improvements to the Budget reports made it possible to use IFS data and to improve the quality of funding information on user reports. The introduction of paid absence accounting for scientific effort required that many Budget reports be enhanced to provide information in both work-time and full-time equivalents. In the IE user environment area, the project team installed the Dun and Bradstreet BrightView product and Query and ExpertLink products. The project team successfully tested these products with live financial data. Users will be able to access these tools in FY1992. Development was begun on the online effort system. Although this project was not completed in FY1991, it is expected that parallel testing will begin with a user division to be selected early in FY1992.

## Materials and Plant Systems Projects

During FY1991 a major change took place in the strategic direction of the Integrated Materials Management System (IMMS) project. As a result, project managers developed a new proposal. Instead of acquiring a software package to replace materials systems, project managers (with ADPO approval) developed a new strategy for FY1992 based on a short-term strategy of (1) keeping the existing Automated Materials Payables System (AMPS) for several more years with some improvements to that system, (2) developing a new online requisitioning and query capability for requisitioners from the user organizations, and (3) planning for the replacement of the current Stock Tracker System (STS) with a vendor-supplied, local area network-based application.

## INTEGRATED FINANCIAL SYSTEM UPDATE

The core of the Integrated Financial System (IFS)--the General Ledger (GL) and the Financial Controller (FC)--and the Information Expert (IE) reporting product have continued to operate with great success in FY1991.

The project team has continued to streamline the functions that assist the Office of the Chief Financial Officer (OCF) in its daily, weekly, and monthly pro-



cessings, with the result that Cost Accounting has been able to close the Laboratory's financial books faster and more efficiently than ever before. This improvement in efficiency has been of direct benefit to the end-users, who have been able to get their financial reports in a more timely manner, sometimes receiving their reports at the same time as OCF is reporting to the Department of Energy (on the fourth working day of the month). In addition, the project team can accomplish the year-end closing of the financial system books and the new fiscal year start-up much sooner than before.

In June 1991, the project team converted to a new vendor release of GL, FC, and IE in just six days. This smooth changeover was possible because the project team opted during the initial implementation in FY1989 to supplement the vendor-supplied software with in-house-developed modules rather than by modifying the vendor's code. This strategy of leaving the vendor applications in their original state will be continued in the future, in accordance with a philosophy developed at the initiation of the project. Other clients who chose to modify the vendor software have found that it takes many months, sometimes longer than a year, to implement new releases when they have to recode any changes they made to earlier versions of the vendor software.

The new release of IE has allowed us to make improvements to the financial reports, such as providing more descriptive information (for example, the Detailed Charges reports now show employee names where appropriate, and the Detailed Charges and the Equipment Authorization and Budget reports show purchasing descriptions obtained from the Purchase Information Reporting System).

Another success has been the introduction of the educational series in the Financial Applications Committee to Effect Telesis (FACET) meetings. At regular and special meetings, the various aspects of financial systems are being explained to users. Attendance has been very high, averaging over 60 attendees per meeting. Dialogue during the meetings has improved the understanding of the Laboratory's financial systems and processes for end-users, for OCF, and for the project team; it has also resulted in changes to systems and procedures. This series will continue throughout the new fiscal year. Meetings are being videotaped for playback at ANL-West and to other organizations desiring to review the material presented.

In FY1991, the project team successfully implemented the BrightView versions of the IFS applications. BrightView is a vendor product that allows personal computer users access to the mainframe-based financial applications with the same ease that they experience when using PC-based spreadsheets and database products. Although we have been able to use BrightView via 3270 terminal protocol and asynchronous dial-up, there are some modifications needed to BrightView before easy access can be provided through the variety of Laboratory-wide access methods. We are working on these difficulties with the vendor and expect to release this product to the general Laboratory population early in 1992.

Progress on all phases of the IFS project will be reported at the FACET meetings held on the second Wednesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

## MVS NEWS

### MVS FORTRAN 2.4.0 MAINTENANCE UPDATE

Maintenance updates to Version 2.4.0 of the IBM VS Fortran program product are now available for testing in MVS batch. The version of VS Fortran in current production in MVS is Version 2.4.0. The upgrades fix a variety of bugs.

CTD plans to make the updated Version 2.4.0 the production version on Monday, January 6, 1992. If you would like to test the updated version of VS Fortran 2.4.0 before January 6, 1992, you must override the STEPLIB, LIBRARY, and/or GOLIB symbolic parameters; different combinations of these parameters appear in each FORTVxxx cataloged procedure. See Table 1 to override parameters for each procedure. For example:

```
//step EXEC FORTVCEP,
//      STEPLIB='SYS2.VSF2COMP',
//      LIBRARY='SYS2.VSF2FORT'
```

If you create permanent load modules from Version 2 object code, you must include dataset SYS2.VSF2LOAD in your execution step STEPLIB specification. For example:

```
//step EXEC PGM=myspgm
//STEPLIB DD DISP=SHR,DSN=Bnnnnnn.myload
//      DD DISP=SHR,DSN=SYS2.VSF2LOAD
```



Table 1									
<i>Required Overrides To Test VS Fortran 2.4.0</i>									
	C	CD	CEG	CEP	CLG	CP	EG	EP	LG
STEPLIB='SYS2.VSF2COMP'	X	X	X	X	X	X			
LIBRARY='SYS2.VSF2FORT'			X	X	X		X	X	X
GOLIB='SYS2.VSF2LOAD'			X		X		X		X

VS Fortran Version 2.4.0 is documented in the *VS Fortran Version 2 Language and Library Reference* (SC26-4221-04) and the *VS Fortran Version 2 Programming Guide* (SC26-4222-04), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies).

If there are no difficulties, CTD will make updated Version 2.4.0 the production version on Monday, January 6, 1992. At this time, CTD will rename the SYS1 datasets to SYS0 and the SYS2 datasets to SYS1. You will no longer need to specify the SYS2 dataset in your JCL. If you have created permanent load modules, you must change the STEPLIB to refer to SYS1.VSF2LOAD after January 6, 1992. Users who experience difficulties should contact the User Services consultants at extension 2-5405.

#### **PLANS TO SIMPLIFY REGION-MANAGED DATABASE DISK SPACE**

The MVS database disk volumes (DAT801 through DAT810) have been controlled by a locally written quota system. This system was first implemented in the early 1970s when available disk space was limited. As a step in the conversion to MVS/XA, this quota system will be replaced with a simpler system, which will be easier to maintain and manage.

The DATnnn volumes will be controlled by the Resource Access Control Facility (RACF), which will control who may allocate datasets on these volumes. The quotas will be eliminated, and datasets on these volumes will be charged like any other dataset. Previously, the charge was based on the amount of space reserved, whether used or unused.

Users who have previously contracted for space may wish to consider whether they still need the space and whether they would have difficulties sharing a volume with other users. If they do, they can contract for a full volume.

This phased implementation will start with the volumes controlled by single groups. If you have any questions or concerns, contact Douglas Engert at extension 2-5444.

## **PERSONAL COMPUTING**

#### **UPDATED VIRUSCAN AND CLEAN-UP PROGRAMS AVAILABLE**

To combat the threat to ANL of viruses that can attack computers that use the MS-DOS operating system, CTD has obtained the latest copy of the Clean-up Version V84 and Viruscan V84 programs. Previously, CTD had purchased a license for 100 copies and has already distributed 75 copies to Argonne's IBM personal computer virus fighting team members. The Clean-up program attempts to remove viral infections from files that cannot be restored from a back-up disk. Version 84 can disinfect over 897 virus variants, including DIR2.

CTD recommends that you check for viruses by using the following procedures:

1. Run the Viruscan program to verify that your files are not infected. When Viruscan completes with the "No Viruses Found" message, no further action is necessary.
2. If Viruscan identifies an infected file, immediately notify Jean Troyer, the Computer Program Protection Manager (CPPM), at extension 2-7440 and follow these steps:

- a. Locate your most recent back-up copy.
  - i. Delete the infected file.
  - ii. Restore it from the previous back-up copy.
  - iii. Rerun the Viruscan program to make sure the virus is gone.
- b. If you have no back-up copy:
  - i. Use the CLEAN.EXE program to attempt to resolve the difficulty by eliminating the virus. CLEAN.EXE may not be able to recover all of the infected file. Keep the write protect TAB in place on the Clean-up diskette to prevent possible infection.
  - ii. Review the computer protection plan for your application.
  - iii. Institute a practice of making regular back-ups.

CTD is distributing Viruscan Version 84 and Clean-up Version 84 on one diskette to Argonne's personal computer virus fighting team members. This 5 1/4" diskette, *Viruscan/Clean-Up for IBM PC V84*, is available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

Because our license limits us to 100 copies, we are asking you to obtain your copy directly from the Document Distribution Counter. Please do not make additional copies for further distribution.

## SCIENTIFIC WORKSTATIONS

### HEWLETT-PACKARD HP 720 AVAILABLE FOR USER TRIAL

Hewlett-Packard has loaned Argonne National Laboratory an HP 720 RISC workstation for trial and evaluation for thirty days. On Wednesday, November 20, 1991, CTD installed this machine. The Internet address is [hpdemo.ctd.anl.gov](mailto:hpdemo.ctd.anl.gov).

The HP 720 obtains 18 megaflops on the Linpack 100 x 100 benchmark (Jack Dongarra, *Performance of Various Computers Using Standard Linear Equation Software*, September 5, 1991). The Model 720 has 32 megabytes of main memory and a total of 1 gigabyte of disk storage on two physical disk drives. The available software is the Fortran and C compilers and the HP X Window environment.

To test the HP 720 RISC workstation, contact Dave Leibfritz at extension 2-6596 or at Internet address [b36000@achilles.ctd.anl.gov](mailto:b36000@achilles.ctd.anl.gov) for an account. CTD is especially interested in users' experiences with the workstation and reactions to the Model 720's performance. In exchange for its free use, CTD would appreciate receiving copies of any documented experiences and performance results achieved while using this machine.

## TELECOMMUNICATIONS NEWS

### NERSC MOVES TO UNICOS

The National Energy Research Supercomputer Center (NERSC) is in the process of converting its supercomputers to the Unix-Based Cray Operating System (UNICOS) from the Cray Time Sharing System (CTSS). The changeover will be completed by January 1992. As a result of moving to UNICOS, the way Argonne users access the NERSC hosts will change. Once the conversion to UNICOS is complete, the VAX host system software supplied by NERSC will no longer be used. At Argonne, Computing and Telecommunications (CTD), Physics (PHY), Chemistry (CHM), and Chemical Technology (CMT) were running the NERSC-supplied software.

The commands like `tell` (electronic mail), `netout` (file transfer), and `netty` will no longer be usable from VAX systems or NERSC Crays. Argonne users will use the Transmission Control Protocol/Internet Protocol (TCP/IP) `telnet` command instead of `netty` to reach the NERSC computers after they convert to UNICOS.

In addition, Argonne users will use the TCP/IP `ftp` command instead of the `netout` command and the `mail` command instead of the `tell` command to transfer files between NERSC and ANL. See "How To Use the UNICOS E-Mail Utilities" in the NERSC *BUFFER* newsletter (October 1991).



NERSC users will use the UNICOS `lpr` command instead of the `netout` command to print files on the CTD 3800 laser printer and the microfiche unit.

To print a file on the IBM 3800 laser printer, enter:

```
lpr -P anl3800 -C anldistid filename
```

To print a file on microfiche, enter:

```
lpr -P anlfiche -C anldistid filename
```

where "anldistid" is your ANL output distribution id and "filename" is the name of your NERSC file. Note that CTD Operations personnel will have difficulty distributing your printed output into the proper output bins in Building 221 unless you code your ANL output distribution id when you issue the `lpr` command.

NERSC has written several documents to aid users in the conversion to UNICOS. Use the CTSS `document` command or the UNICOS `document` shell script to obtain copies of the `nqs.batch` and `migration.guide` documents. Be aware that NERSC encourages users to use UNICOS Network Queuing System (NQS) batch for production calculations and that interactive CPU use is limited to 20 minutes per interactive process. Also, be aware that you will not be able to use your CTSS files unless you translate them for UNICOS. (See Chapter 12 of the `migration.guide` document.)

#### **DECOMMISSIONING ARGONNE BITNET/MFENET GATEWAY**

Since 1986, Argonne has run the BITnet/MFEnet gateway that allowed Argonne and BITnet sites to send and receive mail and files from nodes on the Magnetic Fusion Energy network (MFEnet). In January 1992, to coincide with the National Energy Research Supercomputing Center (NERSC) conversion of its systems to the Unix-Based Cray Operating System (UNICOS), the BITnet/MFEnet gateway will stop running. In the future, all BITnet sites will access NERSC computers through the INTERBIT gateway nodes on BITnet.

Argonne users will use the new NERSC Internet style names to access NERSC computers. For example, the F machine that was converted to UNICOS in July 1991 can be reached by `telnet` by using the address `f.nersec.gov`. Electronic mail can

be sent to a NERSC user by using `userid@f.nersec.gov`. (After NERSC converts to UNICOS, your NERSC userid will be your Cray Time Sharing System (CTSS) user number without leading zeros prefixed by a lowercase "u." Your initial UNICOS password will be your CTSS password suffixed with a plus sign (+). You must change your UNICOS password when you first log in.) File transfers using the file transfer protocol (FTP) to the F machine would use the address `f.nersec.gov`.

Argonne users should use the familiar Transmission Control Protocol/Internet Protocol (TCP/IP) commands--`telnet`, `ftp`, and `mail`--to access Cray UNICOS supercomputers at NERSC and the UNICOS `lpr` command to print NERSC files on the ANL 3800 and microfiche printers. (See "NERSC Moves to UNICOS" in this *Newsletter*.) TCP/IP commands are available from IBM CMS, VAX/VMS systems using TGV MultiNet, the ANL Cray XMP, and Unix workstations. In addition, IBM PC and Apple Macintosh users of the National Center for Supercomputing Applications (NCSA) Telnet also have the `telnet` and `ftp` commands available. Users not familiar with the `telnet`, `ftp`, `mail`, and `lpr` commands should contact the User Services consultants at extension 2-5405.

#### **NEW ADDITIONS TO BITNET UNIVERSITY NETWORK**

The BITnet University Network enhances collaborative efforts between Argonne scientists and scientists at universities and other organizations. You can use electronic mail through BITnet to share programs, data, and other information with other BITnet users.

Currently, the BITnet network comprises over 3,485 computers at over 1,240 sites. Since the last *Newsletter* article in October 1991, the following universities and organizations have joined BITnet:

Academy of Science--Moscow  
Charles University--Prague  
Chungang University--Seoul  
Consortium of Asian Research and Educational Networks (CAREN)--Japan  
Dongguk University--Seoul  
Federal University of Bahia--Salvador, Brazil  
Florida Information Resources Network--Tallahassee  
Gaziantep University--Turkey  
Generalitat de Catalunya--Barcelona  
HTBLA--Leonding, Austria  
Louisiana Technical University

Mineral Resources Research Company--Rio de Janeiro  
Santa Casa de Misericordia de Sao Paulo--Brazil  
Vermont State Colleges--Waterbury

For a complete list of organizations in the BIT-net network and their nodenames, enter (in CMS, the CTD VAX cluster, or MVS Wylbur):

#### HELP BITNET NODES

### BITS & BYTES

#### CUMULATIVE SUBJECT INDEX

Each December we publish the cumulative index from the *Newsletters* of previous years. Other monthly issues include an index only for the current calendar year.

CMS and VAX users may search the entire *Newsletter* index online for a particular *Newsletter* topic by entering:

#### LOOKUP topic

where "topic" is the name of the topic (one or more words) for which you need information. LOOKUP will display the topic entries on the CMS user's terminal and will return a file to the VAX user's "READER" subdirectory. The filename will be "LOOKUP.topic" and can be either "TYPED" to your terminal or sent to a printer.

Wylbur users may use LOOKUP by entering

#### DO LOOKUP

and responding to the prompt for a topic. After the system has sent the information to your fetch queue, enter:

#### FETCH topic

Then enter:

#### LIST

The system will list the page numbers for every index entry containing the topic name.

For more information, enter:

#### HELP LOOKUP

### RECENTLY UPDATED AND PUBLISHED DOCUMENTS

CTD periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy):

#### Computing and Telecommunications Documents

*The ANL/ESnet Node Maintenance Guide* (ANL/TM 491) describes the operation and maintenance of the Argonne National Laboratory (ANL) Energy Sciences network (ESnet) node. Although this document is written primarily for the CTD Service Engineering Group, others participating in the operation and management of the ANL/ESnet node may also benefit from it.

*Computational Science and Engineering at Argonne National Laboratory* is a brochure that describes a few of the ways in which Argonne computational research is opening up new vistas of our physical world.

#### IBM Documents

The following list of IBM documents dealing with MVS/Extended Architecture (MVS/XA) are for those intending to be MVS/XA testers. Once the MVS/XA conversion has taken place, production MVS users can obtain them.

*IBM System/370 Extended Architecture: Principles of Operation* (SA22-7085-1) provides, for reference purposes, a detailed definition of the machine functions performed by systems operating in the System/370 extended-architecture (370-XA) mode.

*The MVS/Extended Architecture JCL Reference* (GC28-1352-4) lists the job control tasks needed to enter jobs into the operating system, to control the system's processing of jobs, and to request the resources needed to run jobs. To perform the tasks, programmers code job control statements. This document describes how to code these statements. Full explanations of the job control tasks are in the *MVS/Extended Architecture JCL User's Guide* (GC28-1351). This document is for system and application programmers who enter programs into the operating system. Users of this document should



understand the concepts of job management and data management.

The *MVS/Extended Architecture JCL User's Guide* (GC28-1351-4) describes the job control tasks needed to enter jobs into the operating system, to control the system's processing of jobs, and to request the resources needed to run jobs. To perform the tasks, programmers code job control statements. This document describes how to use these statements. This document is a user's guide, to be used when deciding how to perform job control tasks. It does not describe how to code the statements. For an introduction to the statements and for coding information, see the *MVS/Extended Architecture JCL Reference* (GC28-1352). This document is for system and application programmers who enter programs into the operating system. Users of this document should understand the concepts of job management and data management.

*MVS/Extended Architecture Message Library: System Codes* (GC28-1157-6) describes completion codes and wait state codes and the causes of uncoded wait states and loops. The description of most codes ends with a problem determination paragraph, which lists suggested actions as items in tables. This document is for operators, system programmers, and applications programmers.

*MVS/Extended Architecture Message Library: System Messages, Volume 1* ADY-IEB (GC28-1376-7) contains descriptions of messages with prefixes ADY through IEB that many MVS/Extended Architecture operating system components issue.

*MVS/Extended Architecture Message Library: System Messages, Volume 2* IEC-ITV (GC28-1377-7) contains descriptions of messages with prefixes IEC through ITV that many MVS/Extended Architecture operating system components issue.

*MVS/System Product Version 2 Release 2 General Information* (GC28-1500-3) contains general overview and planning information for Version 2 Release 2.0 (and all subsequent releases). This document is for installation managers and system programmers who are considering installing either of these products. Readers of this document should have a background in MVS.

The *Resource Access Control Facility (RACF) Command Language Reference Version 1 Release 9* (SC28-0733-11) describes the syntax and the functions of the commands for Version 1 Release 9 of the Resource Access Control Facility (RACF), Program Number 5740-XXH. This document is for RACF-defined users who are responsible for creating, updating, or maintaining the profiles for users, groups, datasets, and general resources on the RACF database on MVS or VM systems. This document supersedes the *Resource Access Control Facility (RACF) Command Language Reference* (SC28-0733-9).

*TSO Messages* (GC28-1310-4) explains TSO and TSO Extensions messages and provides some diagnostic information for people who debug programs.

#### Cray Research, Inc. Documents

The *CF77 Compiling System, Volume 1: Fortran Reference Manual* (SR-3071 5.0) is a reference manual for the Fortran compiler that is part of the CF77 compiling system. The compiling system operates on all Cray Research computers and operating systems. This document supersedes the *CF77 Compiling System, Volume 1: Fortran Reference Manual* (SR-3071 4.0).

The *CF77 Compiling System, Volume 2: Compiler Message Manual* (SR-3072 5.0) lists all messages issued by the compiling phase of the CF77 compiling system. Each message is followed by an expanded description of the problem and possible solutions. This document supersedes the *CF77 Compiling System, Volume 2: Compiler Message Manual* (SR-3072 4.0).

The *CF77 Compiling System, Volume 3: Vectorization Guide* (SG-3073 5.0) explains the use of vector processing with the CF77 compiling system. The compiling system operates on all Cray Research computers and operating systems.

The *CF77 Compiling System, Volume 4: Parallel Processing Guide* (SG-3074 5.0) describes the CF77 compiling system. This document defines and describes the Autotasking feature of the CF77 compiling system. Autotasking is the automatic distribution of loop iterations to multiple processors. This document supersedes the *CF77 Compiling System, Volume 4: Parallel Processing Guide* (SG-3074 4.0).

## Digital Equipment Corporation Documents

The *PATHWORKS for DOS User's Handbook* (AA-PAF7B-TK) shows personal computer users how to use PATHWORKS with the disk operating system (DOS). This document describes what the PATHWORKS system is and how you can use PATHWORKS for DOS network services and applications. This document assumes that the user is familiar with personal computers and has some knowledge of DOS. This document supersedes the *Guide for New Users* (AA-PAF7A-TK).

## University of Chicago Documents

The *University of Chicago Agreements with Personal Computer Vendors* (October 28, 1991) contains the latest lists of personal computer discounts available through the University of Chicago to Argonne employees for both personal and Laboratory purchases. This revised price list supersedes the price list of September 23, 1991.

## Other Vendor Documents

*Fortran 90 Explained* (0-19-853772-7) is a complete reference work. The first chapter sets out the background to the work on the new standard. The following nine chapters describe Fortran 90 less its redundant and obsolescent features. Some knowledge of programming concepts, although not necessarily of Fortran 77, is assumed.

*Prolog Programming for Artificial Intelligence, Second Edition* (0-201-41606-9) is for students of Prolog and Artificial Intelligence. Prolog is a programming language centered on a small set of basic mechanisms (including pattern matching, tree-based data structuring, and automatic backtracking). This document introduces the Prolog language and shows how Prolog programs are developed. It also demonstrates the power of Prolog applied in some central areas of Artificial Intelligence (including problem solving and heuristic search, expert systems, game playing and pattern-directed systems). The reader should have a basic general knowledge of computers, but no knowledge of Artificial Intelligence is necessary. This document supersedes *Prolog Programming for Artificial Intelligence* (0-201-14224-4).

*Using MS-DOS Kermit: Connecting Your PC to the Electronic World* (1-55558-082-3) describes

MS-DOS Kermit Version 3.11 for the IBM PC, PS/2, and compatibles. This document supersedes *Using MS-DOS Kermit* (1-55558-048-3).

## USERS GROUP HIGHLIGHTS

### MINUTES OF COMPUTER USERS GROUP MEETING HELD NOVEMBER 5, 1991

Pat Garner (Reactor Analysis) opened the meeting at 3:04 p.m.

**Status of FDDI Initiative.** Tim Kuhfuss (Computing and Telecommunications) reported on the current state of the Fiber Distributed Data Interface (FDDI) initiative. LANmark has grown by 18 percent in the last 12 months, creating more baseline traffic and slower response time. Even with the onsite/offsite split of connections into the Private Branch Exchange (PBX), three large file transfers create a delay of about 8 seconds. To try to help, CTD is in the process of setting up its own FDDI ring and router, which will remove this traffic from the site backbone.

To help the situation at the Laboratory, a General Physical Plan (GPP) request was submitted to install FDDI cable throughout the Laboratory, with a hub in Building 221 and in Building 308. The plan would be to lay 18 multi-mode fibers and 12 single-mode fibers (for future gigabit transfer rates) when optical cable is installed. If done at one time, the cost is about \$566,000. If done over several years, the cost is about \$600,000. Currently, when telephone cable is run to a building, optical cable is also installed.

The GPP request was signed and submitted on October 4, 1991. CTD is in the process of submitting the necessary proposals so that work could begin if the funds are made available. The divisions that want the capability to attach to the FDDI when it reaches their building will need a Cisco router with the capability to install an FDDI interface. This router costs about \$11,000. A router with the FDDI/Ethernet interface installed is about \$20,000. The anticipated location for FDDI entry into most buildings has been established. The division will need to acquire and locate the router in a locked location and to plan for optical cable connections from the FDDI entrance point to the router.



To help with the current traffic, it is requested that people configure their systems, keeping broadcast packets off the network if possible. Currently, about 60 percent of the traffic is broadcast packets.

**Progress on the Network Operations Center.** Gary Schlesselman (Computing and Telecommunications) introduced Jim Love (Computing and Telecommunications), who reported on the work of the Network Operations Center (NOC). This Center has a network-trained operator to monitor the status of external and internal networks with the XGMON software from IBM. Currently, the FDDI, external, and central computing networks are monitored, with the possibility of expanding, on a contractual basis, to division networks.

NOC consists of an IBM and Sun workstation running the XGMON software. There is a manual trouble-ticket system, and Jim is assigned as the Network Operations Specialist. He has taken additional training in network evaluation. The operators continually monitor the networks, receive trouble reports, resolve difficulties or notify the appropriate people to resolve the difficulties, and record network statistics.

NOC is at extension 2-5421 or at electronic mail address noc@anl.gov.

**Plans for Improvement of Microfiche Quality.** Gary Schlesselman (Computing and Telecommunications) reported on difficulties and fixes with the microfiche quality. After work on the processor, things seemed to work for about three weeks, until the photographic chemistry was changed. Then difficulties reappeared. As long as things were running continuously, there were few difficulties; but, when the process started and stopped often, the difficulties occurred. It was finally determined that temperature fluctuations in the solutions caused the output quality variability. The bottle locations have been changed and things seem to be working better. Now, in addition to the operators test of output on a densitometer and a reader, they also test pages on a fiche printer.

The CUG meeting adjourned at 3:40 p.m.

Ken Miles, CUG Secretary

#### **MINUTES OF GRAPHIC ARTS USER GROUP MEETING HELD SEPTEMBER 19, 1991**

Chairperson Floyd Bennett (Information and Publishing Division, Technical Communications Services) opened the meeting at 12:04 p.m., mentioning that election of the 1991-92 chairperson and secretary would be held after the discussion portion of this meeting. He also asked meeting participants to think about choices for a new group name now that Graphic Arts has been renamed Media Services (MED).

Joe Paulini (Media Services) and Rich Nixon (Media Services) began a discussion of the first scheduled topic by commenting that the immediate impact of the reorganization is minimal: there has been no disruption of service. Mid-term and long-term effects should be all to the good, because services throughout the newly merged departments and groups within the new Information and Publishing Division (IPD) will be streamlined, leading to greater efficiency. Communication difficulties can be minimized because everyone in IPD will understand who does what.

Rich Nixon mentioned that Argonne has been the only major DOE laboratory without some degree of centralization in its editorial and publication services. The consensus is that a single division or group encompassing most or all of these services is more efficient and allows for quicker decision-making. A more direct line of management could, for example, simplify the ordering and acquisition of new equipment. Having a director who will be a strong advocate of Argonne's editorial and publication needs is a plus. The IPD director will likely become Argonne's representative in the group known as the National Laboratory Scientific and Technical Information Managers (NLSTIM).

A question was asked about how work will be handled for groups within IPD and for groups and divisions outside IPD that have no editors. Rich Nixon replied that IPD groups, as well as non-IPD groups and divisions without an editor, but who need editorial assistance, should contact Mary Warren, managing editor for Technical Communication Services (TCS) within IPD at extension 2-8719. Media Services will continue to give equal service to all customers (IPD and non-IPD), with experience showing that there has never been a need to turn one customer away to handle the work of another.

Moreover, IPD does not want or need to impose editorial and graphic standards and rules, although *de facto* standards might emerge via IPD's consistent recommendations for high-quality products.

Another question dealt with the future of the customer service concept. Customer service will certainly remain a part of MED. Los Alamos National Laboratory, however, has an editorial and publication division similar in structure to ANL's in which a customer service group reports to the division director. The MED program may eventually emulate that mode.

Rick Fenner (Advanced Photon Source) was elected chairperson, and Chuck Malefyt (Materials and Components Technology) was reelected secretary.

The next meeting is at noon on Thursday, December 12, 1991, at a location to be announced.

Chuck Malefyt, Graphic Arts Users Group Secretary

#### **MINUTES OF MACINTOSH USERS GROUP MEETING HELD NOVEMBER 22, 1991**

Bob Kampwirth (Materials Science) opened the meeting at 11:04 a.m.

Eliot Axelrod (technical representative from Apple Computer) demonstrated three of the new Apple computers: the Macintosh Quadra 700, the Macintosh PowerBook 100, and the Macintosh PowerBook 170. He did not discuss the other new Apple Macintosh products (such as two new printers and a new scanner). If there is interest, Eliot will demonstrate them at a future meeting. The Apple Macintosh Quadra 700 and 900 computers are a big advance over the previous top-of-the-line Apple computer, the Macintosh II fx. Even though all three computers have a clock speed of 25 hertz, the two Apple Macintosh Quadra computers are much faster. Three reasons for the faster performance are (1) the new Motorola 68040 processor chip, (2) video computations done separately from those of the applications, and (3) the small computer systems interface (SCSI) port. The Apple Macintosh Quadra 700 computer is about the same size and shape as the Apple Macintosh II cx or ci. An upgrade path will be available to the Quadra 700 from either the Apple Macintosh II cx or ci. The University of Chi-

cago price was reported to be approximately \$2,200 for this upgrade. The University of Chicago price for the basic Apple Macintosh Quadra 700 with 4 megabytes of memory and an Apple keyboard, but without a monitor, will be \$4,021.

Eliot did not bring the Apple Macintosh Quadra 900 because it is too big. It is meant to be a computer workstation or file server. The Quadra 900 can be locked so that software and hardware in use cannot be touched. Its large internal space can hold several disks, including hard disks, erasable optical disks, and CD read-only memory (ROM) disks. Both the Quadra 700 and 900 have Ethernet onboard so that a computer slot is not used up adding this capability.

The three new Apple Macintosh portable computers--the PowerBook 100, 140, and 170--are a big advance over the original Apple Macintosh portable computer. The Apple Macintosh PowerBook 100 is like the original Apple Macintosh portable, but it weighs less (5.2 pounds). The computer display is now backlit by using a Supertwist liquid crystal display (LCD) screen, and the computer will fit into a briefcase. The University of Chicago price for the Apple Macintosh PowerBook 100 running at 16 megahertz with 2 megabytes of memory, a 20 megabyte hard disk, battery, an AC adapter, and an external 1.4 megabyte floppy disk drive will be \$1,988.

The top of the Apple portable line (the Apple Macintosh PowerBook 170) is like an Apple Macintosh II ci. It weighs 6.9 pounds with a very readable active matrix display. It has no video output; however, it does have a SCSI port that third-party vendors (such as Radius) will use to supply this feature. The University of Chicago price for the Apple Macintosh PowerBook 170 running at 25 megahertz with a 68030 microprocessor, a 68882 math coprocessor, 4 megabytes of memory, a 40 megabyte hard disk, battery, an AC adapter, an external 1.4 megabyte floppy disk drive, and a fax/data modem will be \$3,588.

The Apple Macintosh PowerBook 140 is a hybrid, having some of the features of the Apple Macintosh PowerBook 100 and the Apple Macintosh PowerBook 170. The University of Chicago price for the Apple Macintosh PowerBook 140 running at 16 megahertz with a 68030 microprocessor, 2 megabytes of memory, a 40 megabyte hard disk, battery, an AC adapter, a microphone, and an exter-



nal 1.4 megabyte floppy disk drive will be \$2,521. For both the Apple Macintosh PowerBook 100 and 140, Eliot recommended getting an additional 2 megabytes of memory. He does not think the standard 2 megabytes of memory is enough.

A special feature of all three new Apple Macintosh portable computers is the keyboard design. The keys are close to the computer screen so that the palms of the hands will have a place to rest when the computer is used as a laptop computer. A trackball, which moves the on-screen cursor, is located in the middle of the hand rest area, where it is easily accessible by either thumb.

After the meeting, it was noted that David Lifka (Computing and Telecommunications) has obtained a sitewide license for HyperCard 2.1. This software is now available via the Public Volume on the AppleShare network. The new University of Chicago pricelist (10/28/91) for Apple Macintosh computers is also there. The pricelist is given in two formats, Excel 2.2 and text. Details on accessing the Public Volume were given in the minutes of the September 1991 meeting.

In December 1991, the meeting will return to its normal time on the second Wednesday of the month. Jackie Copple (Chemical Technology) and Ralph Leonard (Chemical Technology) will demonstrate two Apple Macintosh spreadsheets, Claris Resolve and Microsoft Excel 3.0.

In January 1991, the meeting will feature a demonstration of FrameMaker (sometimes called the ultimate Apple Macintosh word processor).

The Apple Macintosh Users Group normally meets the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee Wagar (Media Services), Jim Lewellen (Computing and Telecommunications), or Ralph Leonard (Chemical Technology) for further meeting information. Lee Wagar sends out the meeting announcement via QuickMail or E-mail, when possible, and via paper to those who have no electronic mail capabilities. If you have an electronic mail address and are not receiving an electronic meeting announcement, contact Lee Wagar at extension 2-5603 or via QuickMail.

The meeting adjourned at 12:10 p.m.

Ralph Leonard, Macintosh Users Group Secretary

# WORKLOAD STATISTICS (OCTOBER 1 THROUGH OCTOBER 30, 1991)

## NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	END OF MONTH	ACTIVE DURING MONTH
CMS	1,243	1,201	416
Wylbur	1,657	1,618	300
MVS TSO	57	57	26
CICS	2,315	2,241	178
MVS Batch	2,315	2,241	601
VAX/VMS	688	679	236
Cray	358	360	131
All Systems	2,315	2,241	973

## INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				SESSION TIME (HRS)	CPU TIME (HRS)
	PRIME	NIGHT	WEEKEND	TOTAL		
<b>INTERACTIVE</b>						
CMS	11,469	2,484	1,509	15,462	40,567.7	94.01
Wylbur	5,651	333	197	6,181	6,153.7	4.62
MVS TSO	876	19	12	907	846.6	2.63
CICS	*	*	*	*	*	*
VAX/VMS	6,878	2,375	139	9,392	28,757.4	151.57
Cray	786	159	95	1,040	977.0	311.51
<b>IBM BATCH</b>						
Class U	8,593	1,933	997	11,523	**	27.71
Class W	13,971	3,438	641	18,050	**	123.78
Class X	25	1,051	16	1,092	**	42.28
Class Y	0	0	194	194	**	15.17
Nonmain	17,676	1,728	1,258	20,662	**	0.00
Total	40,265	8,150	3,106	51,521	**	208.94
<b>CRAY BATCH</b>						
u	786	159	95	1,040	**	1.80
w	2,990	94	115	3,199	**	29.99
x	1,443	77	116	1,636	**	58.97
y	870	434	304	1,608	**	178.60
Total	6,089	764	630	7,483	**	269.36
<b>VMS BATCH</b>						
W BATCH	188	299	139	626	**	26.86
X BATCH	0	9	1	10	**	45.61
Y BATCH	0	0	2	2	**	0.33
Total	188	308	142	638	**	72.80

## INPUT/OUTPUT

Lines Printed	53,276,834
Local	55,340,963
Remote	57,257,973
Fiche	7,565
Tape Mounts	6,265
Microfiche Developed	1,259,347
Microfiche Frames Developed	

## GRAPHICS

	# OF JOBS	# OF FRAMES
CalComp Jobs	50	*
Matrix 35mm Color	136	318
Matrix-8 x 10	3	3
Matrix-Negative	0	0

## DATA MANAGEMENT

Total Tapes Stored	24,946
Round Tapes Saved	120
Round Tapes Released	761
Cartridges Saved	1,451
Cartridges Released	1,077
Datasets Exported to Tape	2,567
Datasets Imported from Tape	481

\* not available

\*\* not applicable



AVAILABILITY STATISTICS, BY MACHINE (OCTOBER 1 THROUGH OCTOBER 30, 1991)

	Monthly Totals	Hardware	Scheduled Software	Other	Hardware	Unscheduled Software	Other
CMS							
All Shifts							
Interruptions	6.00	2.00	4.00	0.00	0.00	0.00	0.00
Hrs Unavailable	7.61	4.38	3.23	0.00	0.00	0.00	0.00
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
NYLBUR							
All Shifts							
Interruptions	16.00	2.00	8.00	0.00	1.00	5.00	0.00
Hrs Unavailable	14.31	4.35	5.28	0.00	3.50	1.18	0.00
MTF/Unscheduled	117.61				705.68	141.13	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	5.00	0.00	0.00	0.00	0.00	5.00	0.00
Hrs Unavailable	1.18	0.00	0.00	0.00	0.00	1.18	0.00
MTF/Unscheduled	52.56					52.56	
MVS TSO							
All Shifts							
Interruptions	12.00	2.00	7.00	0.00	1.00	2.00	0.00
Hrs Unavailable	12.95	4.35	4.45	0.00	3.50	0.65	0.00
MTF/Unscheduled	235.68				707.05	353.52	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2.00	0.00	0.00	0.00	0.00	2.00	0.00
Hrs Unavailable	0.65	0.00	0.00	0.00	0.00	0.65	0.00
MTF/Unscheduled	131.67					131.67	
JES3							
All Shifts							
Interruptions	11.00	2.00	6.00	0.00	1.00	2.00	0.00
Hrs Unavailable	10.08	2.05	3.91	0.00	3.50	0.61	0.00
MTF/Unscheduled	236.63				709.91	354.95	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2.00	0.00	0.00	0.00	0.00	2.00	0.00
Hrs Unavailable	0.61	0.00	0.00	0.00	0.00	0.61	0.00
MTF/Unscheduled	131.69					131.69	
CICS							
All Shifts							
Interruptions	1.00	0.00	0.00	0.00	0.00	1.00	0.00
Hrs Unavailable	0.33	0.00	0.00	0.00	0.00	0.33	0.00
MTF/Unscheduled	719.66					719.66	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	1.00	0.00	0.00	0.00	0.00	1.00	0.00
Hrs Unavailable	0.33	0.00	0.00	0.00	0.00	0.33	0.00
MTF/Unscheduled	263.66					263.66	
VAX/VMS (VAX 8700)							
All Shifts							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
VAX/VMS (VAX 6410)							
All Shifts							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTF/Unscheduled							
CRAY							
All Shifts							
Interruptions	12.00	4.00	6.00	0.00	1.00	1.00	0.00
Hrs Unavailable	17.46	12.93	3.93	0.00	0.15	0.45	0.00
MTF/Unscheduled	351.26				702.53	702.53	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2.00	0.00	2.00	0.00	0.00	0.00	0.00
Hrs Unavailable	0.20	0.00	0.20	0.00	0.00	0.00	0.00
MTF/Unscheduled							

COMPUTING CENTER USE IN DOLLARS BY COST CENTER (OCTOBER 1 THROUGH OCTOBER 30, 1991)

CC	CENAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
ADVANCED PHOTON SOURCE							
130	ADVANCED PHOTON SOURCE DIV	\$226	\$339	\$0	\$356	\$189	\$1,109
132	EXP FACIL DIV	\$7	\$0	\$0	\$0	\$0	\$7
272	ADVANCED PHOTON SOURCE	\$123	\$0	\$0	\$24	\$79	\$226
340	APS ASD MANAGEMENT	\$29	\$0	\$0	\$0	\$67	\$95
341	APS ACCELERATOR PHYSICS	\$255	\$3,606	\$0	\$75	\$160	\$4,096
342	APS DIAGNOSTICS	\$0	\$16	\$0	\$0	\$520	\$535
343	APS LINAC	\$0	\$210	\$0	\$13	\$0	\$223
344	APS RF	\$3	\$19	\$0	\$29	\$18	\$70
345	APS VACUUM/MECHANICAL ENG.	\$9	\$6,971	\$1	\$137	\$3,484	\$10,601
346	APS DESIGN AND DRAFTING	\$0	\$80	\$0	\$0	\$0	\$80
347	APS CONTROLS	\$46	\$1	\$0	\$0	\$52	\$99
348	APS MAGNETS	\$58	\$2	\$0	\$0	\$1	\$61
349	APS POWER SUPPLIES	\$30	\$0	\$0	\$0	\$2	\$31
350	APS DIVISION MANAGEMENT	\$20	\$0	\$0	\$15	\$14	\$34
351	APS INSERTION DEVICES	\$49	\$559	\$0	\$141	\$1	\$248
352	APS ENGINEERED SYSTEMS	\$50	\$3,778	\$0	\$323	\$703	\$5,540
353	APS BEAM LINE INSTRUMENTATION	\$23	\$1,584	\$0	\$0	\$0	\$2,107
360	APS CONVENTIONAL FACILITIES	\$12	\$0	\$0	\$0	\$0	\$12
361	APS PROJECT DIRECTION	\$49	\$0	\$0	\$0	\$32	\$82
362	APS MANAGEMENT GENERAL	\$36	\$17	\$0	\$9	\$33	\$95
SUBTOTAL		\$1,023	\$17,181	\$1	\$1,153	\$7,173	\$26,531
ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH							
110	BIO & MED RES DIV	\$1,396	\$750	\$92	\$1,076	\$1,488	\$4,802
125	TECHNOLOGY TRANSFER CENTER	\$58	\$4	\$0	\$1	\$113	\$176
149	ENVIRONMENTAL RESEARCH DIV	\$1,833	\$1,593	\$97	\$1,181	\$729	\$5,433
155	ENERGY SYSTEMS DIVISION	\$1,497	\$3,175	\$7,165	\$948	\$747	\$13,532
165	ENV ASSESS & INFO SCI DIV	\$5,547	\$4,529	\$772	\$583	\$3,547	\$14,978
174	ENER/ENV/BIO PROG DIR	\$9	\$0	\$0	\$0	\$102	\$110
246	ES-NAT'L ENERGY SOFTWARE CTR	\$74	\$0	\$3	\$578	\$385	\$1,041
274	ENER/ENV/BIO RES PROG ADM	\$128	\$0	\$0	\$1	\$251	\$380
SUBTOTAL		\$10,543	\$10,051	\$8,129	\$4,368	\$7,363	\$40,454
ENGINEERING RESEARCH							
102	EBR-II PROJECT-ANL WEST	\$1,662	\$12	\$597	\$2,112	\$165	\$4,549
104	FUELS AND PROCESSES DIVISION	\$1,636	\$231	\$14	\$461	\$144	\$2,486
107	CHEMICAL TECHNOLOGY DIVISION	\$832	\$318	\$0	\$736	\$738	\$2,624
112	REACTOR ENGINEERING DIVISION	\$5,922	\$1,096	\$6,466	\$2,314	\$2,756	\$18,552
114	MATLS & COMP TECH DIV	\$5,278	\$4,301	\$1,754	\$2,317	\$2,765	\$16,414
115	ENGINEERING PHYSICS DIVISION	\$3,622	\$1,018	\$3,823	\$1,642	\$1,985	\$12,090
116	REACTOR ANALYSIS DIVISION	\$32,939	\$9,160	\$49,519	\$13,104	\$11,153	\$115,875
117	APPLIED PHYSICS-ANL WEST	\$4,911	\$204	\$15,995	\$288	\$325	\$21,724
118	FUEL CYCLE DIVISION	\$1,056	\$3,239	\$4	\$160	\$421	\$4,880
171	ENG RES PROG DIR	\$6	\$0	\$0	\$0	\$106	\$112
197	SPECIAL PROJECTS OFFICE	\$370	\$1	\$0	\$21	\$175	\$567
211	ENGR PHYS DIV - DESIGN ENGR	\$43	\$5	\$0	\$10	\$3,065	\$3,123
269	ANALYTICAL CHEMISTRY LABORATORY	\$87	\$0	\$0	\$4	\$111	\$202
271	ENG RES PROG ADMIN	\$267	\$0	\$0	\$30	\$384	\$682
SUBTOTAL		\$58,632	\$19,584	\$78,173	\$23,198	\$24,293	\$203,880
PHYSICAL RESEARCH							
105	MATERIALS SCIENCE DIVISION	\$604	\$5,393	\$470	\$1,613	\$638	\$8,718
109	PHYSICS DIV	\$1,662	\$566	\$23	\$1,295	\$705	\$4,251
120	CHEMISTRY DIV	\$621	\$6,706	\$9,607	\$337	\$588	\$17,858
136	INT PULSE NEUT SOURCE PROG	\$2,016	\$1,681	\$693	\$597	\$512	\$5,499
137	HIGH ENERGY PHYSICS DIV	\$567	\$1,348	\$3,566	\$794	\$908	\$7,182
139	DIV OF EDUCATIONAL PROGRAMS	\$219	\$4	\$0	\$83	\$250	\$555
145	MATHEMATICS & COMPUTER SCI DIV	\$93	\$87	\$334	\$646	\$4,617	\$5,777
146	CTD DIV - SCI APPL & RES	\$95	\$315	\$662	\$178	\$1,208	\$2,458
273	PHYSICAL RESEARCH PROGRAM ADMIN	\$49	\$10	\$0	\$31	\$118	\$208
SUBTOTAL		\$5,925	\$16,110	\$15,356	\$5,573	\$9,544	\$52,508
EXTERNAL							
751	FERMI NATIONAL LABORATORY	\$616	\$0	\$0	\$927	\$522	\$2,065
752	NAVY	\$12,183	\$0	\$0	\$1,212	\$4,279	\$17,674
753	MORGANTOWN ENERGY TECH CENTER	\$12	\$0	\$0	\$0	\$0	\$12
754	DEPARTMENT OF ENERGY AT ANL	\$0	\$12	\$0	\$16	\$25	\$53
760	ABBOTT LABORATORIES	\$3	\$0	\$49	\$0	\$0	\$52
763	GENERAL ELECTRIC COMPANY	\$0	\$1	\$0	\$0	\$1	\$60
766	BECHTEL NATIONAL, INC.	\$0	\$43	\$16	\$0	\$0	\$59
775	SMITHSONIAN	\$0	\$0	\$0	\$0	\$4	\$4
777	UNIVERSITY OF CHICAGO AT ANL	\$15	\$0	\$0	\$151	\$0	\$166
778	ARGONNE CREDIT UNION	\$6	\$0	\$0	\$0	\$0	\$6
779	UNIVERSITY OF ILLINOIS AT CHICAGO	\$6	\$0	\$0	\$0	\$0	\$6
780	NEW BRUNSWICK LABORATORY	\$12	\$0	\$0	\$0	\$0	\$12
781	STATE OF ILL. DEPT. MENTAL HEALTH	\$0	\$0	\$0	\$0	\$0	\$0
782	PACKER ENGINEERING	\$19	\$0	\$0	\$4	\$15	\$39
783	WEST VALLEY NUCLEAR SERVICES CO	\$0	\$51	\$168	\$0	\$0	\$218
784	SSC LABORATORY	\$0	\$102	\$1	\$5	\$0	\$107
787	ILLINOIS INSTITUTE OF TECHNOLOGY	\$0	\$0	\$0	\$0	\$-640	\$-640
788	GOVERNOR'S STATE UNIVERSITY	\$0	\$0	\$0	\$0	\$-640	\$-640
789	ILLINOIS MATH AND SCIENCE ACADEMY	\$0	\$0	\$0	\$0	\$0	\$0
SUBTOTAL		\$13,014	\$243	\$234	\$2,314	\$3,574	\$19,380



CC	CCNAME	IBM	VAX	CRAY	NETWORK	PERIPHERAL	CCTOTAL
			OPERATIONS				
143	SUPP SERV DIV - ELEC DEPT	\$164	\$5	\$0	\$305	\$248	\$722
148	HUMAN RESOURCES-MEDICAL DEPT	\$2,295	\$0	\$0	\$187	\$618	\$3,100
150	SUPPORT SERV DIV - SPEC MATLS	\$190	\$0	\$0	\$40	\$181	\$411
161	IPD-TECH INFO SERV	\$879	\$19,535	\$0	\$3,092	\$1,289	\$24,796
201	OFFICE OF THE DIRECTOR	\$155	\$0	\$0	\$132	\$123	\$419
202	OFC OF CHIEF OPER OFCR	\$18	\$0	\$0	\$94	\$101	\$212
210	SUPP SERV DIV - CENT SHOPS	\$325	\$0	\$0	\$78	\$349	\$752
216	SUPPORT SERVICES DIVISION	\$132	\$0	\$0	\$47	\$111	\$289
222	PLANT FAC & SERV-LODGING FAC	\$0	\$0	\$0	\$0	\$100	\$100
232	SUPPORT SERV DIV - SECURITY	\$305	\$0	\$0	\$4	\$191	\$500
234	ESH DIV-HEALTH PHY	\$271	\$71	\$0	\$133	\$237	\$712
235	ESH DIV	\$843	\$47	\$0	\$142	\$534	\$1,566
236	ESH DIV-FIRE DEPT	\$8	\$0	\$0	\$0	\$101	\$109
245	COMPUTING AND TELECOM DIV	\$25,304	\$0	\$0	\$4,111	\$2,973	\$32,387
247	COMP & TEL DIV - COM SERV	\$3,590	\$0	\$0	\$432	\$996	\$5,019
260	IPD-MEDIA SERV DEPT	\$312	\$709	\$0	\$27	\$302	\$1,350
265	IPD-TECH COM SERV	\$10	\$5	\$0	\$4	\$0	\$19
275	OFFICE OF PUBLIC AFFAIRS	\$781	\$0	\$0	\$92	\$164	\$1,037
276	OFC PUB AF - MOTN PIC UNIT	\$47	\$0	\$0	\$0	\$19	\$66
288	INF & PUBL DIV	\$0	\$0	\$0	\$0	\$0	\$0
296	TELECOM COST/RECOVERY	\$0	\$0	\$0	\$65	\$0	\$65
315	SUPP SERV DIV-MATLS & SERV	\$3,900	\$0	\$0	\$1,052	\$638	\$5,590
316	PLANT FAC & SERV-VEH MAINT	\$0	\$0	\$0	\$0	\$168	\$168
317	PLANT FAC & SERV-DRIVRIG SERV	\$18	\$0	\$0	\$2	\$100	\$120
319	SUPP SERV DIV-TRAVEL OFC	\$0	\$0	\$0	\$0	\$100	\$100
322	SUPP SERV DIV-PROCUREMENT	\$43	\$0	\$0	\$1	\$104	\$148
333	ENVIR SAFE HEALTH & QA OVERSIGH	\$353	\$19	\$0	\$114	\$340	\$826
336	SUPP SERV DIV - INSPECTION	\$17	\$2	\$0	\$0	\$2	\$20
400	OFC OF CHIEF FIN OFFICER	\$64,846	\$0	\$0	\$4,403	\$17,956	\$87,205
401	ACCOUNTING	\$0	\$0	\$0	\$50	\$100	\$150
402	OCF-DE	\$9	\$0	\$0	\$0	\$-252	\$-243
403	BUDGET OFFICE	\$0	\$0	\$0	\$0	\$100	\$100
410	HUMAN RESOURCES DEPARTMENT	\$19,143	\$0	\$0	\$1,680	\$2,648	\$23,471
412	AFFIRM ACTION PROGRAM	\$60	\$0	\$0	\$45	\$101	\$206
501	PLANT FAC & SERV-BLDG MAINT	\$29	\$0	\$0	\$45	\$226	\$300
502	PLANT FAC & SERV-INSTALLATIONS	\$33	\$0	\$0	\$4	\$100	\$137
503	PLANT FAC & SERV-GROUNDS	\$0	\$0	\$0	\$0	\$100	\$100
504	PLANT FAC & SERV-CUSTODIAL	\$3	\$0	\$0	\$0	\$100	\$103
505	PLANT FAC & SERV-WASTE MGMT OP	\$47	\$0	\$0	\$63	\$100	\$210
506	PLANT FAC & SERV-PLANT MGR OFC	\$564	\$0	\$0	\$21	\$372	\$957
509	PLANT FAC & SERV-OPERATION DIN	\$0	\$0	\$0	\$0	\$0	\$0
510	PLANT FAC & SERV-UTILITY SYST	\$0	\$0	\$0	\$0	\$100	\$100
512	PLANT FAC & SERV-FAC PLNG/ENG	\$1,827	\$0	\$0	\$166	\$434	\$2,427
530	SITE MGRS OFC-ANL WEST	\$156	\$4	\$0	\$8	\$105	\$272
531	HUMAN RESOURCES-AW	\$146	\$0	\$0	\$24	\$100	\$270
532	SPECIAL MATLS-ANL WEST	\$1,162	\$0	\$0	\$291	\$299	\$1,753
533	ACCOUNTING-ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
534	PURCHASING-ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
535	SECURITY - ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
536	ENVIRONMENT, SAFETY & HEALTH-AW	\$11	\$0	\$0	\$0	\$102	\$114
537	INFORMATION SERVICE-ANL WEST	\$0	\$0	\$0	\$0	\$100	\$100
538	SUPPLY-AW	\$64	\$0	\$0	\$10	\$100	\$174
548	ANL WEST GENERAL EXPENSE	\$171	\$0	\$0	\$41	\$2	\$214
550	COMPUTER APPL & SERV - ANL-W	\$108	\$1	\$0	\$11	\$101	\$221
554	MACHINE SHOP-ANL WEST	\$34	\$0	\$0	\$0	\$100	\$137
556	SITE ENGRG-ANL WEST	\$98	\$0	\$0	\$11	\$100	\$208
557	PLANT SERVICES-AW-SERVICE REQ	\$29	\$4	\$0	\$5	\$100	\$139
558	PLANT SERVICES-AW-FUNCTION	\$3	\$0	\$0	\$0	\$0	\$3
561	OFC OF QUALITY ASSURANCE - AW	\$3	\$0	\$0	\$0	\$101	\$104
	SUBTOTAL	\$128,506	\$20,412	\$0	\$17,035	\$33,885	\$199,839
	TOTAL	\$217,644	\$83,583	\$101,893	\$53,641	\$85,832	\$542,593

## COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	Onsite (Illinois)	Onsite (Idaho)	Offsite (Area Code 708)
Network Operations Center	2-5421	8-252-5421	252-5421
Current System Status Recorded Message	2-5466	8-252-5466	252-5466
User Consultant	2-5405	8-252-5405	252-5405
Documentation	2-5405	8-252-5405	252-5405
Computer Operations	2-5421	8-252-5421	252-5421
VM/SP Operator	2-8442	8-252-8442	252-8442
RADS Maintenance	2-7273	n.a.	252-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		

### CICS, CMS, Wylbur, and TSO Interactive Computing Services

IBM 3270 Protocol Converter			
1200 to 19.2K Bits Per Second (Onsite)	2-3270	n.a.	
1200 to 2400 Bits Per Second (Offsite)			252-3270
9600 to 19.2K Bits Per Second (Offsite)			252-3219
X.25 Terminal Multiplexor			
300 to 19.2K Bits Per Second (Onsite)	2-2525	n.a.	
1200 to 2400 Bits Per Second (Offsite)			252-2525
9600 to 19.2K Bits Per Second (Offsite)			252-2519
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
1,200 Bits Per Second Full-Duplex			
(Bell 212 and Hayes Compatible Modems)	2-2212	n.a.	252-2212
1,200 Bits Per Second Full-Duplex			
(Vadic 3400 Compatible Modems)	2-7612	n.a.	252-7612
300 Bits Per Second	2-7603*	n.a.	252-7603*

\* When using a 300 bits per second modem, you must use a capital "P" to logon.

### Batch Remote Job Entry Service

2,000 or 2,400 Bits Per Second			
(Bell 201A and 201C Compatible Modems)	2-7989	n.a.	252-7989
4,800 Bits Per Second			
(Bell 208B Compatible Modems)	2-7573	n.a.	252-7573

### Central DEC VAX Cluster

1200 to 19.2K Bits Per Second (Onsite)	2-8700	n.a.	
1200 to 2400 Bits Per Second (Offsite)			252-8700
9600 to 19.2K Bits Per Second (Offsite)			252-8745

### Argonne TCP/IP Network

1200 to 19.2K Bits Per Second (Onsite)	2-5588	n.a.	
1200 to 2400 Bits Per Second (Offsite)			252-5588
9600 to 19.2K Bits Per Second (Offsite)			252-4726

### Argonne MFEnet Dial-Up

300 to 19.2K Bits Per Second	2-7920	n.a.	252-7920
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## COMPUTING CENTER SERVICE SCHEDULE

(All Times Are Central Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	VM/XA	VMS
Monday to Thursday	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00	00:00-04:00** 07:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00

\*\* Except for the interruption of UNICOS from 4:00 a.m. until 8:00 a.m. on Mondays for maintenance, service continues uninterrupted past 4:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 3:00 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 3:00 p.m. before making plans that require the availability of a service the following morning.



[illegible]

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Argonne National Laboratory  
Computing and Telecommunications Division  
January 1992

### COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering eight classes. There is no charge for attending classes, unless otherwise indicated. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the class and notify attendees of any schedule changes. CTD will reschedule or cancel any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

#### INTRODUCTION TO COMPUTING FACILITIES AND SERVICES

Goals: To develop an overview of available computing facilities and services provided by CTD.

Length of Class: One 3-hour session

Date and Time: January 8, 1992 (Wednesday), 9:00 a.m. to noon

Location: Building 221, Room A-261

Suggested Reading: *Guide to Computing at ANL* (ANL/TM 336, REVISION 2)  
*Recommended Documentation for Computer Users at ANL* (ANL/TM 379, REVISION 2)  
*Guide to Telecommunications at ANL* (ANL/TM 422, REVISION 1)

Instructor: Fred Moszur

#### INTRODUCTION TO VAX/VMS

Goals: To learn some basic concepts on VAX/VMS (including how to logon to VMS, create files, set up subdirectories, compile and link programs, submit batch jobs, use the online HELP facilities, and access the companion computer-based instruction courses in VMS).

Length of Class: One 3-hour session

Date and Time: January 9, 1992 (Thursday), 9:00 a.m. to noon

Location: Building 221, Room A-261

Suggested Reading: *VMS User's Manual* (AA-LA98B-TE)

Instructor: Dave Lifka



## INTRODUCTION TO UNIX

- Goals:** To learn the basic concepts required for using Unix computer systems. This class will be a general overview of Unix commands, editing, and file systems and will demonstrate topics from logging on to creating, compiling, and executing a program.
- Length of Class:** Three 3-hour lectures and three 1-hour labs
- Dates and Time:** January 13, 14, and 15, 1992 (Monday, Tuesday, and Wednesday)  
9:00 a.m. to noon (Lecture)  
One-hour Lab each afternoon
- Location:** Building 221, Room A-216 (Lecture)  
Building 221, Room A-261 (Lab)
- Suggested Reading:** *A Practical Guide to the Unix System* (0-8053-0243-3)
- Instructor:** Dave Leibfritz

## PROGRAMMING IN VAX/VMS

- Goals:** To learn to use the VAX/VMS system. This class will include VAX Fortran programs, suggestions for writing basic Digital Command Language (DCL) command procedures (including a LOGIN.COM), the usage of the VMS system debugger and the interprocess communications features, and an overview of the aspects of VMS internals affecting program performance.
- Length of Class:** One 3-hour session
- Date and Time:** January 16, 1992 (Thursday), 9:00 a.m. to noon
- Location:** Building 221, Room A-261
- Instructor:** Dave Lifka

## INTRODUCTION TO UNICOS

- Goals:** To learn the basics of the Cray UNICOS file system, space management, and shell programming. To learn how to use the Network Queueing System (NQS) for Cray batch processing and how to submit work and to manage Cray files from the IBM MVS front-end station and the Laboratory-Wide Local Area Network.
- Length of Class:** One 3-hour session
- Date and Time:** January 20, 1992 (Monday), 1:30 p.m. to 4:30 p.m.
- Location:** Building 221, Room A-261
- Suggested Reading:** *A Practical Guide to the Unix System* (0-8053-0243-3)  
*UNICOS Primer* (SG-2010 6.0)  
*ANL Supplement to the UNICOS Primer* (ANL/TM 460)
- Instructor:** Steve Karlovsky

## INTRODUCTION TO WYLBUR FOR MVS BATCH COMPUTING

**Goals:** To learn to use Wylbur, an interactive system that provides a convenient interface for IBM MVS batch processing. To learn about the IBM MVS batch system at Argonne (including how to compile and execute programs and obtain printer output). Wylbur is efficient, easy-to-learn, and powerful for editing data and programs and for submitting jobs for IBM batch execution.

**Length of Class:** One 3-hour lecture with lab

**Date and Time:** January 21, 1992 (Tuesday), 9:00 a.m. to noon

**Location:** Building 221, Room A-261

**Suggested Reading:** *SLAC Wylbur Tutorial*  
*OBS Wylbur Reference Manual*

**Instructor:** Mike Thommes

## USING CMS WITH IBM 3270-COMPATIBLE DISPLAY TERMINALS

**Goals:** To learn to use CMS with an IBM 3270-compatible display terminal, an IBM or Apple Macintosh personal computer with NCSA tn3270, or an ASCII terminal capable of using the Hydra Protocol Converter. To learn to send and receive electronic mail; to write documents and memos; to organize information in files; to create program, text, and data files; to manipulate files with the editor; to invoke programs like statistical and graphic packages; and to get printed reports.

**Length of Class:** Two 3-hour lectures with labs

**Dates and Time:** January 21 and 22, 1992 (Tuesday and Wednesday), 1:30 p.m. to 4:30 p.m.

**Location:** Building 221, Room A-261

**Suggested Reading:** *IBM Virtual Machine/Extended Architecture System Product VM/XA SP, Release 1 and Release 2: CMS Primer (SC23-0368-0)*  
*CMS at ANL (ANL/TM 423, REVISION 2)*

**Instructor:** Pete Bertoncini

## USING SAS

**Goals:** To develop familiarity with the Statistical Analysis System (SAS), to become familiar with its flexible input mechanisms (which are capable of reading virtually any format of data and easily permit selection of data), to learn to use some basic reporting features, and to become aware of the capabilities made possible by a variety of SAS procedures.

**Prerequisite:** Some knowledge of CMS, MVS, VAX/VMS, or an IBM PC

**Length of Class:** Two 3-hour sessions

**Dates and Time:** January 23 and 28, 1992 (Thursday and Tuesday), 1:30 p.m. to 4:30 p.m.

**Location:** Building 221, Room A-261

**Suggested Reading:** *SAS Introductory Guide*

**Instructor:** Mike Thommes



## COMPUTER-BASED TRAINING COURSES

Currently, CTD offers one computer-based training course in CMS and five courses on the central VAX cluster. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

### IBM CBT Course

(Enter SLFTEACH at the CMS prompt.)

Course Name	Course Title
SLFTEACH	Introduction and Advanced Concepts of Xedit

### DEC CBT Courses on the Central VAX 6410 (node ANLCV1)

(Enter RUN "course name" at the DCL level.)

VMSCAI	Introduction to VAX/VMS
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers

Argonne National Laboratory  
Computing and Telecommunications Division Rates  
Revised December 2, 1991

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne National Laboratory's scientific and technical programs and administrative activities.

Scientific Applications and Research:

- Performs research and development in advanced scientific computing and telecommunications technologies.
- Performs applications research in supercomputing, networking, scientific visualization, parallel processing, and other areas of computer science.
- Participates in developing Laboratory initiatives and technology transfer programs in scientific computing.

Management Information Systems:

- Provides leadership in optimizing computing and information services.
- Works with divisions, departments, programs, user groups, and Laboratory management to define needs and priorities.
- Coordinates the development of and provides assistance for the business-related computing requirements of the Laboratory.
- Provides leadership in the selection and integration of administrative computing systems.

Computing and Telecommunications Operations:

- Manages the Laboratory's central computing production systems.
- Manages the Laboratory's voice and data communications systems.
- Coordinates the development of and provides assistance for an integrated hierarchy of computing systems.
  - Provides guidance in the use of supercomputers and large-scale central computers.
  - Provides resources, technical guidance, and other assistance for distributed minicomputers, scientific and engineering workstations, and personal computers.
- Provides leadership in disseminating computer-related technologies throughout the Laboratory.

Additionally, CTD has Laboratory-wide responsibility to:

- Work with all segments of the Laboratory to determine requirements and priorities for computing and telecommunications needs.
- Develop plans, prepare recommendations, and implement computing policy for the Computing Policy Committee.
- Provide leadership in research, development, and implementation of computing technologies.



### GENERAL INFORMATION

*Eligible users.* The computing and telecommunications services provided at Argonne National Laboratory are generally available to all members of the Laboratory; DOE and other U.S. Government agencies are served by arrangement. In addition, other not-for-profit organizations may apply for permission to use these computing services. Commercial firms are generally not eligible to use Argonne National Laboratory computing services.

*Shift differentials.* The week is divided into three shifts. Applicable shift differentials for job charges are based on the time an interactive session starts or a batch job begins execution; and rates are reduced outside prime shift to reflect the lower desirability, lighter load, and reduced operations staffing off prime shift and during holiday periods. The three shifts are defined as follows:

Prime	Monday through Friday, 7:00 a.m. to 7:00 p.m.
Overnight	Monday through Friday, 7:00 p.m. to 7:00 a.m. the following morning.
Weekend	Saturday 7:00 a.m. to Monday 7:00 a.m. and Holidays.

Periods may be preempted for maintenance, housekeeping, and systems time, especially during the overnight and weekend shifts; unavailability is announced when possible the afternoon before scheduled periods of unavailability.

*Service premiums and discounts.* Some of the charges for batch computing services listed here include service premiums and discounts (that is, MVS batch and VMS batch). During each shift, at least two levels of service are available: (1) an expedited service and (2) a regular service. Users select the level of service they require and indicate their requests by specifying CLASS= on MVS JOB cards or the appropriate batch queue on the SUBMIT command in VAX/VMS. We measure service as the delay between the time the job is submitted and the time it begins execution. The computer operating system and computer operators schedule jobs to satisfy users' requests for service. In MVS and VMS, charges may be reduced if the service requested is not provided.

*Special arrangement jobs.* Special arrangements are necessary to schedule the running of jobs that exceed established scheduling limits for time and/or memory resource allocations or that need special operator attention to schedule for other reasons. Users with these special jobs need to call User Services. User Services will determine if the jobs can be processed with special arrangements or not. User Services will then arrange with Computer Operations for scheduling approved special jobs.

*Surcharge to non-ANL users.* Outside users with computer accounts funded by DOE but not by ANL incur a surcharge of approximately 25 percent. The surcharge for DOE-affiliated users outside the Laboratory is analogous to the overhead charge incurred by programmatic divisions for Laboratory general administrative expense. Outside computer users not affiliated with DOE incur a nonadditive combination of surcharges for Laboratory general administrative expense, Laboratory general depreciation, depreciation of computing equipment, and DOE administrative expense. Such outside users with computer accounts funded neither by DOE nor by ANL incur accumulated surcharges of approximately 60 percent.

*Limited availability.* Some of the computing services listed here are available in limited quantities or to only certain users, either for technical or policy reasons. For example, online disk storage and telecommunications ports are limited to available hardware, and MVS TSO enrollment is limited. Users should consult with CTD before making plans or commitments that require specific services or resources.

*Refund policy.* A computer user is entitled to a refund of charges for resource usage that occurred as a result of hardware failure, system software failure, error on the part of the CTD staff, or similar circumstances beyond the user's control. The refund will not cover the parts of the job that can reasonably be skipped or suppressed in the rerun. Refunds of less than \$50 are not processed. Regardless of the cause of the failure, *no more than 15 minutes worth of CPU time will be refunded for a batch job*; users with programs that require more than 15 minutes for computation should save intermediate results at least every 15 minutes for recovery purposes in case of failure. Users are responsible for backing up their own

datasets; refunds will not be given for the cost of recreating lost or damaged datasets. Refunds are also not provided for I/O errors on personal tape reels. To apply for a refund, fill out a "Computer Refund Request" form (available from the Consulting Office) and send it with adequate supporting evidence to the Consulting Office. Your request will be reviewed; and, if a refund is due, it will be applied to your account.

### COMPUTER MANUALS

Users may purchase computer manuals at the Document Distribution Counter in Building 221, Room A-134, or may order manuals by calling extension 2-5405. Please consult *Recommended Documentation for Computer Users at ANL* (ANL/TM 379), for information on our policies, procedures, and recommendations. The charge for computer manuals is based on their direct cost plus an amount for ordering, inventory, and handling costs. In general, CTD does not stock documents that cost \$80.00 or more and will order them only upon request.

### INTERACTIVE SERVICES

*Cray UNICOS (Cray X-MP/18).* Cray Research's UNICOS system provides interactive Unix services primarily for those users requiring access to the Cray interactive debugger or doing interactive graphics. Access to interactive UNICOS is through the TCP/IP network.

*DEC VMS (VAX Cluster).* The Digital Equipment Corporation VMS system is an easy-to-use environment for interactive programming and screen-oriented applications. The VAX 6410 and 8700 have a range of modern programming tools, scientific libraries, and database systems oriented to (but not limited to) scientific and engineering applications and provide Cray interactive access and tools for running Cray batch jobs.

*IBM VM/XA CMS (IBM 3084).* VM/XA is an efficient, easy-to-learn interactive system for executing programs. It has a separate file system; but it has a link to submit jobs to, and retrieve output from, the batch systems. Many useful applications programs, compilers, and utilities can be used interactively in VM/XA; and batch programs can be developed in VM/XA and then installed for production in MVS batch without change.

*OBS Wylbur (IBM 3084).* Wylbur is an efficient, easy-to-learn interactive system for editing files and managing MVS batch jobs. It shares access to most disks used by MVS batch jobs; and it submits jobs to, and retrieves output from, the MVS batch system. Users may write and use powerful exec programs in Wylbur to perform frequent or repetitive series of commands, but Wylbur does not execute other programs (such as Fortran or user applications). Wylbur charges are predominated by session time and include very little CPU time for typical user work; the CPU time rates are set to compensate for Wylbur's underreporting of the user's CPU use.

*IBM CICS/VS (IBM 3084).* IBM's Customer Information Control System (CICS) is a general-purpose database and data-communication processing system that provides several of Argonne's administrative computing applications. The Laboratory's Personnel and Payroll Systems, the Medical System, and the Argonne Materials Ordering System (AMOS) are presently using CICS for online inquiry and updating of information contained in their application databases. User access to these CICS application software packages is authorized on an application-by-application basis.

*IBM MVS TSO (IBM 3084).* MVS TSO is intended only for users whose applications require it. TSO consumes more resources than VM/SP or Wylbur with batch for performing comparable tasks; our capacity plan for allocating computing resources requires restricting TSO usage in favor of VM/SP and Wylbur services, because they make more effective use of computer resources. Therefore, MVS TSO enrollment is limited; it is not automatic as with VM/SP, Wylbur, or batch, but is subject to approval by CTD management. MVS TSO has been installed essentially without local modifications; most applications packages and language processors are not available in MVS TSO, and we do not plan to offer TSO introductory courses and consulting services. Users may apply for MVS TSO authorization by completing a brief MVS TSO enrollment form available from Account Services (Building 221, Room A-147).



### BATCH SERVICES

*Cray UNICOS.* The Cray Research, Inc. UNICOS operating system is derived from the AT&T Unix System V operating system with Berkeley Unix enhancements and includes the Network Queuing System (NQS) for managing batch jobs. The job CPU time estimate is limited to one hour during the day shift and three hours during the other shifts. You may submit batch jobs to one of the UNICOS batch job queues mentioned below.

You control the scheduling and charging of an NQS batch job by placing it into one of the four priority-based batch queues. In decreasing order of NQS job selection priority, UNICOS job dispatching priority, and resource charging rate, these queues are designated by the single lowercase characters: *u*, *w*, *x*, and *y*.

Regardless of queue, jobs requesting more than one hour of CPU time will not run during the prime shift, unless the UNICOS system is unusually lightly loaded; jobs in all queues that require no more than one hour of CPU time will be eligible to run anytime. However, during the prime shift when a backlog of higher priority (*u* and *w*) jobs develops, the UNICOS operators may stop scheduling *x* and *y* jobs and may suspend *x* and *y* jobs that have already started but not completed. The operators will restart suspended jobs and resume scheduling *x* and *y* jobs when the backlog diminishes or prime shift ends.

*DEC VMS.* The Digital Equipment Corporation VMS system batch services are entirely compatible with VMS interactive applications that do not require terminal input. The batch service classes (*W*, *X*, and *Y*) are obtained by submitting jobs to the following queues with the *SUBMIT* command:

#### | VAX CLUSTER QUEUES

*W\_BATCH.* The *W\_BATCH* queues provide regular batch service at any time of day. The *SHORT\_W\_BATCH* queue is the default queue if none is specified. The *SHORT\_W\_BATCH* queue has a maximum time limit of five minutes. The *W\_BATCH* queue has a maximum time limit of one hour.

*X\_BATCH.* The *X\_BATCH* queues are for jobs that you wish to defer until the overnight shift. They provide overnight service if jobs are submitted by 5:00 p.m. Monday through Friday. The *X\_BATCH* queue has a maximum time limit of one hour. The *SPECIAL\_X\_BATCH* queue is for jobs that need resources that exceed normal limits of CPU time and memory. At our discretion, we may start *X\_BATCH* queue jobs during the prime shift.

*Y\_BATCH.* The *Y\_BATCH* queues provide processing with lower charges than the *X\_BATCH* queues; batch jobs in these queues will normally run overnight or weekends (if resources are available), when the job will have little impact on other processing. The *Y\_BATCH* queue has a maximum time limit of one hour. The *SPECIAL\_Y\_BATCH* queue is for jobs that need resources that exceed normal limits of CPU time and memory. There are no guarantees when *Y\_BATCH* jobs will run.

Computing rates charged are determined by the shift in effect when the job starts. The operators will suspend jobs executing in the *X\_BATCH* and *Y\_BATCH* queues during the prime shift. The operators will restart suspended jobs and resume scheduling *X\_BATCH* and *Y\_BATCH* jobs when the backlog diminishes or prime shift ends.

*IBM MVS SP (IBM 3084).* We offer four classes of MVS batch service that are detailed below. Batch job classes enable users to choose between expedited and regular service; they also permit users to defer execution of batch jobs to shifts with lower rates. Table 1 shows the class of service and shift multipliers that result from the combination of shift differentials and service premiums and discounts selected by the user.

*Class U Expedited Batch.* Class U provides expedited batch service within a few minutes anytime of day, comparable to response from interactive systems.

*Class W Regular Batch.* Class W provides regular batch service within a few hours anytime of day. This class is the default.

*Class X Deferred Overnight Batch.* Class X requests that job execution normally be deferred until the overnight shift. It provides assured overnight service if submitted by 5:00 p.m. Monday through Friday but is not eligible to run during prime shift. At our discretion during the day, we may release Class X jobs.

*Class Y Deferred Weekend Batch.* Class Y provides lower charges than Class X; batch jobs in this class will normally run only on weekends, when the jobs will have negligible impact on other jobs. We make no estimates or guarantees about when they will run.

Central Processing Charging Algorithm

$$SS * [(CPU * R_1) + (STO * R_2) + (I/O * R_3)]$$

Where:

SS = Class of Service/Shift Multiplier (See Table 1)

CPU = CPU Hours Used

STO = CPU Storage Occupancy Megaword Hours Used

I/O = Thousands of Input/Output Requests Issued

$R_1$  = Central Processor Rate (See Table 2) per CPU hour

$R_2$  = CPU Storage Occupancy Rate (See Table 2) per megaword hour

$R_3$  = Input/Output Transfer Charge (See Table 2) per thousand



Table 1: Class of Service and Shift Multipliers

Class	Prime	Overnight	Weekend
<b>Cray X-MP/18 Batch</b>			
u	2.00	1.50	1.50
w	1.00	0.75	0.75
x	0.50	0.50	0.50
y	0.30	0.30	0.30
<b>Cray X-MP/18 Interactive</b>	<b>2.00</b>	<b>1.50</b>	<b>1.50</b>
<b>IBM Batch</b>			
U	2.00	1.50	1.50
W	1.00	0.75	0.75
X	0.50	0.50	0.50
Y	0.30	0.30	0.30
<b>IBM Interactive</b>			
Wylbur	6.00	4.50	4.50
CMS	2.00	1.50	1.50
TSO	3.00	2.25	2.25
CICS	2.00	1.50	1.50
<b>VAX Batch (6410 or 8700)</b>			
W_BATCH (includes SHORT_W_BATCH)	1.00	0.75	0.75
X_BATCH (includes SPECIAL_X_BATCH)	0.50	0.50	0.50
Y_BATCH (includes SPECIAL_Y_BATCH)	0.30	0.30	0.30
<b>VAX Interactive (6410 or 8700)</b>	<b>2.00</b>	<b>1.50</b>	<b>1.50</b>

Table 2: Central Processing Rates

	$R_1$ Central Processor	$R_2$ CPU Storage Occupancy	$R_3$ Input/Output Transfers
<b>Cray X-MP/18</b>	<b>\$500.00</b>	<b>\$140.00</b>	<b>\$0.32</b>
<b>IBM 3084</b>			
MVS	\$300.00	\$200.00	\$0.32
VM/XA	\$300.00	\$0.00	\$0.32
<b>VAX 8700</b>	<b>\$60.00</b>	<b>\$0.00</b>	<b>\$0.32</b>
<b>VAX 6410</b>	<b>\$70.00</b>	<b>\$0.00</b>	<b>\$0.32</b>

*PERIPHERAL, JOB, AND NETWORK SERVICES*

These charges do not vary by shift and service level.

<i>Resource</i>	<i>Unit</i>	<i>Rate</i>
IBM/CMS, VAX/VMS, and Cray Interactive Session Time	Hour	\$ 1.00
Batch Job Setup Charge	Job	0.25
Tape Setup	Tape	1.00
Output Printing	Thousand Lines	0.60
Remote Printing (VM Print Image Files and Microfiche)	Thousand Lines	0.20
Files Transferred as Card Images (Includes Remote Punching)	Thousand Cards	0.20
DatagraphiX AutoCOM II (ANLVM.FICHE)	Fiche	1.25
VAX Cluster Print Queue Set-Up Fee	One-Time	50.00
VAX Cluster Print Queue Subscription Fee <sup>1</sup>	Printer Month	10.00

*SCIENTIFIC VISUALIZATION AND GRAPHICAL OUTPUT*

At the time of establishing rates for FY1991, the Production Scientific Visualization Services were not yet available. Some prototype capabilities are available to scientific users who are willing to accept some unpredictability in schedules and some experimentation. Charges are presented here for planning purposes and will likely need to be revised after the video recording system has been in production for a while and the demand and turnaround times are better understood.

Animation experience is available with selected visualization software. Selected 2-D imaging tools include NCSA Image, X Image, and DataScope; Stardent Dor'e and AVS; PV-Wave; and SGI GL. 3-D imaging tools include Imgslice, VoxelLab, Stardent Dor'e and AVS, and SGI GL.

<i>Animation Resource</i>	<i>Unit</i>	<i>Rate</i>
Recording System Setup (Includes Data Transfer, Program Setup, Equipment Setup, and Initial Image Manipulation)	Session	\$75.00
Video Recording System Usage		
Interactive or Real-Time Recording	Hour	\$10.00
Stop-Frame Recording	Hour	\$5.00
Creation of BetaCam Master Tape (Retained by CTD)	Tape-Minute	\$2.00
3/4" Dub from BetaCam Master (Required by Film and Video for Post-Production Editing)	10 Minutes	\$25.00
	20 Minutes	\$40.00
	30 Minutes	\$50.00
	60 Minutes	\$75.00
VHS or Betamax Format Copies	10 Minutes	\$15.00
	20 Minutes	\$25.00
	30 Minutes	\$35.00
	60 Minutes	\$50.00
35mm Slide Output (Includes Setup, Film, and Development)	Slide	\$9.00

<sup>1</sup> In addition to the monthly user charge, users will incur Remote Printing charges.



<i>Graphical Output Resource</i>	<i>Unit</i>	<i>Rate</i>
Per Job Surcharge	Job	\$ 0.15
Frames	Frame	0.02
Device Time		
Matrix	Hour	45.00
Materials		
Matrix Color Film	Foot	1.50
Matrix Color Transparency	Foot	6.00

*MISCELLANEOUS SOFTWARE, ACCESS, AND USAGE CHARGES*

<i>Resource</i>	<i>Unit</i>	<i>Rate</i>
Basic Cost Center Access Charge	Cost Center Month	\$100.00
(The monthly user and cost center access charges for the IBM Professional Office System (PROFS), the Human Resource System (HRS) access charges, the ANSYS monthly access charges, the access to ANLPHONE, and the access to other Laboratory-wide databases have been "bundled" into a single cost center charge.)		
ANSYS Software Package	CPU Minute	2.04
CTD Staff Effort	Hour	51.75
File Server Subscription Fee	User Month	10.00

*DIRECT ACCESS STORAGE*

<i>Resource</i>	<i>Unit</i>	<i>Rate</i>
MVS Disks (\$.0067914 per track day)	Megabyte Day	\$ 0.15
CMS Virtual Disks (Minidisk) (\$.0067914 per track day)	Megabyte Day	0.15
VMS Permanent Disks (\$.00007324 per block day)	Megabyte Day	0.15
Cray Permanent Disks (\$.00058594 per block day)	Megabyte Day	0.15
Sunserver Permanent Disks (\$.00014648 per block day)	Megabyte Day	0.15
CMS Minidisk Restoration from Back-Up Tape	File or Minidisk	35.00
MVS Dataset Restoration from Back-Up Tape	Dataset	35.00
VMS File Restoration from Back-Up Tape	File	35.00
Cray File Restoration from Back-Up Tape	File	35.00
Fileserver Restoration from Back-Up Tape	File	35.00

*TAPE LIBRARY SERVICES*

Storing a copy of a library tape in another building provides library tape disaster protection in the event the CTD tape library in Building 221 is destroyed, as a copy of a user's critical data remains intact. Users who have personal tapes they use in their own building (not Building 221) can store a copy of these tapes in Building 221 as a personal tape to achieve the same level of disaster protection.

All CTD tapes (reels or cartridges) are considered part of the CTD library and are not available for temporary use outside of CTD. Instead, users should purchase tapes for use outside of CTD from Argonne stock or other suppliers. Data on library tapes in CTD can then be copied onto personal tapes for use outside of CTD. When users no longer need the data in CTD, they can release the library tape. If, however, users decide to purchase a tape from CTD, the rate shown applies to cover the cost to replace and prepare another tape for use in the CTD library.

<i>Resource</i>	<i>Unit</i>	<i>Rate</i>
Storage Slot Rental		
Library Tape Reel	Tape Slot Day	\$ 0.04
Library Cartridge (IBM 3480 or 8mm Type)	Tape Slot Day	0.03
Library Tape Disaster Protection	Tape Slot Day	0.10
Personal Tape	Tape Slot Day	0.10
Tape		
Purchase of Cleaned/Tested Tape Reel	Tape Reel	35.00
Return of Tape Reel (Credit)	Tape Reel	18.00
Purchase of Cartridge (IBM 3480 or 8mm Type)	Cartridge	10.00
Return of Cartridge (Credit)	Tape	5.00
Maintenance for User-Owned Tape Reels		
Cleaning User-Owned Tape Reels	Tape	3.00
Cleaning and Testing User-Owned Tape Reels	Tape	20.00

*DATA COMMUNICATIONS SERVICES*

<i>Resource</i>	<i>Unit</i>	<i>Rate</i>
ANL/FNAL Microwave Access Charge	User Month	65.00
Asynchronous Ports		
1,200 Bits Per Second Dedicated	Port Month	100.00
2,000 to 4,800 Bits Per Second Dedicated	Port Month	120.00
Dial-Up	Connect Hour	0.42
X.25 Multiplexer Port, 1,200 to 9,600 Bits Per Second	Line Month	225.00
IBM 3277 Local Attachment	Port Month	125.00
Binary Synchronous Ports		
1,200 to 9,600 Bits Per Second Dedicated (Station ID and Port)	Port Month	150.00
19.2 Kilobits Per Second Dedicated (Station ID and Port)	Port Month	200.00
50 to 56 Kilobits Per Second Dedicated (Station ID and Port)	Port Month	275.00
2,000 or 4,800 Bits Per Second Dial-Up (One Station ID)	Station Month	100.00
Additional Station IDs, Dedicated or Dial-Up	Station ID Month	40.00
Laboratory-Wide DECnet	Port Month	150.00
Peer-to-Peer File Transfer Network Connection		
1,200 to 9,600 Bits Per Second (Station ID and Port)	Port Month	400.00
19.2 to 50 Kilobits Per Second (Station ID and Port)	Port Month	500.00
Single User NJE Routing Through Central VAX <sup>2</sup>	Station Month	30.00
Multiuser NJE Routing Through Central VAX <sup>2</sup>	System Month	250.00
Single User Unix NJE Routing	Station Month	13.00
RADS Remote Job Entry Station (Station ID and Port)	Station Month	1,000.00
Printer Maintenance	Month	30.00
DECwriter III Maintenance	Month	30.00
Vadic Modem 300 Bits Per Second Maintenance	Month	15.00
Vadic Modem 1,200 Bits Per Second Maintenance	Month	15.00
Dedicated Terminal Server Port	Port Month	75.00
Dedicated Terminal Server Port Set-Up Fee	One Time	1,100.00

<sup>2</sup> The Laboratory-Wide DECnet/NJE service was established in FY1989 as an extension to the Peer-to-Peer File Transfer Network Connection services. In addition to the monthly user charge, users will also incur file transfer charges (see "Peripheral, Job, and Network Services").



*PRIVATE BRANCH EXCHANGE (PBX) SERVICES*

<i>Resource</i>	<i>Unit</i>	<i>Rate</i>
Basic Station Service (Analog/Digital Line)	Month	\$40.00
Service Order Processing (Physical Move, Add, or Change)	Each	50.00
Dedicated Onsite Circuit Terminations	Month	4.00
Dedicated Fiber Optic Terminations	Month/Fiber/Termination	50.00
Voice Mail	Mailbox Month	5.00
Measured Services		
Federal Telecommunications Service (FTS)	Minute	0.23 <sup>3</sup>
Local Measured Service (Area Codes 312, 708, and Portions of 815)	Minute	3
Long Distance Service (National and International)	Minute	4
Miscellaneous Commercial Communications Vendor Services		
Lemont Main Numbers		
Private Dedicated Lines		
Cellular Telephone Usage		
Other Offsite Services		
Station Equipment		
Telephone Instruments		
Single-Line Analog Telephone	Month	\$ 1.00
Display (Alpha/Numeric Add-On to ITE)	Month	2.75
ITE 4 Telephone (1 Line, 4 Button)	Month	2.00
ITE 12 Telephone (8 Line, 12 Button)	Month	6.00
ITE 12S Telephone (8 Line, 12 Button, Speakerphone)	Month	7.00
ITE 12SD Telephone (8 Line, 12 Button, Speakerphone, Display)	Month	10.00
ITE 24 Telephone (18 Line, 24 Button, 40 Character Display)	Month	17.50
Miscellaneous Equipment		
Cellular Telephone Rental (\$20.00 Set-Up Charge & Usage)	Day	2.00
Speakerphone (External)	Month	4.00
Remote Billing Station (Lodging Only)	Month	130.00
Other Miscellaneous Station Equipment	Month	2.00
Digital Data Interface Equipment		
Asynchronous		
ADI 100 Asynchronous Data Interface	Month	4.00
ACI 100 Asynchronous Data Interface (Hayes Type)	Month	7.50
ADI 101A Rack-Mounted Asynchronous Data Interface	Month	3.50
ADI 101A Rack Cabinet	Month	8.00
ADI 101A Shelf	Month	5.50
Synchronous		
DIU-2 Synchronous Data Interface w/o Phone	Month	19.00
Ethernet		
DOB-4 for Ethernet Service with ITE 12	Month	19.50
LDI 400/DIU-4 for Ethernet Service without Telephone	Month	25.50
LDI 410/DIU-5 LANmark Ethernet Gateway	Month	45.00
IBM 3270		
DOB-6 for LANmark 3270 with ITE 12	Month	22.00
LDI 700/DIU-6 for LANmark 3270 without Telephone	Month	18.50

| <sup>3</sup> These calls will be rated and billed at approximately 90 percent of AT&T and IBT tariffs with respect to distance, time of day, and length of call.

| <sup>4</sup> Commercial communications vendors provide the listed telecommunication services and bill CTD. CTD bills the monthly costs of these services to the using organization according to the vendor supplied invoice.





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54 EAST 57TH STREET, NEW YORK, N.Y. 10022  
LONDON: 11 BEDFORD SQUARE, W.C.1A 3EF, ENGLAND  
DISTRIBUTED BY THE UNIVERSITY OF CHICAGO PRESS  
100 EAST 57TH STREET, NEW YORK, N.Y. 10022  
LONDON: 11 BEDFORD SQUARE, W.C.1A 3EF, ENGLAND

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